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AN ESSAY ON THE CULTIVATION OF CORN.*

From the Kentucky Farmer.

Indian corn is a grain so necessary in raising and fattening stock, that it must ever be regarded as very important, in any system of agriculture, suitable for the western country. Though an exhausting crop, it may be raised, for a succession of years, upon the same ground. But although a rotation does not appear so essentially necessary in this, as in some other crops, yet the *fact* of a continued cultivation of this grain, even upon our richest land, for a succession of years, gradually deteriorating the soil, and diminishing the annual product, should admonish the husbandman, that a different system ought to be pursued. It should be a settled principle, with every farmer, so to cultivate his land, as never to *deteriorate* his soil. He should constantly aim at *improvement*, as the best and most certain means of preventing *deterioration*. The first consideration, therefore, with every farmer, should be to adopt such a system, in the cultivation of corn, as will not only prevent his soil from being *reduced*, but will gradually *increase* its fertility, and the product of his crop. The means, by which this may be accomplished, depend very much upon the native qualities of the soil, and the degree of deterioration it has undergone.

To treat this subject in a practical and useful manner, it is necessary that we should distinguish between the white oak lands, of the west, having a clay soil, with little or no vegetable mould on its surface, and the rich calcareous soils, having a deep vegetable mould, with a sub-soil of clay, founded on limestone rock. The latter, in its native state, is extremely fertile, and very productive in corn. But most of the lands, of this description, in Kentucky, have been so long, and so unskilfully cultivated, as to have considerably reduced their fertility. Yet experience has shown that they may (when the soil has not been too much washed off,) be restored to their original fertility, by a proper system of cultivation. This *renovation* may be accomplished by a judicious system of *grassing* the land, and restoring to it, in the form of manure, as nearly as practicable, every thing which is taken from it by the growing crops. Ground which has been much exhausted, should, after a wheat crop, be set in clover, by sowing, about the middle of February or between that and the first of March, among the growing wheat, one-tenth of a bushel of clover seed per acre. It should be suffered to remain three summers under pasture, exclusive of the one in which the wheat is harvested. In the third year the clover should be permitted to go *unpastured* from the first of July until about the time the clover ripens,* when it should be turned under by a well-constructed plough, so as to bury every part of it. The better to accomplish this, a harrow, with the teeth reversed or a heavy brush should be drawn over the clover so as to lay it flat, in the direction the ploughs are to run. A harrow should follow the ploughs to fill all the interstices, in order the more completely to cover up the clover. During the winter, while the ground is frozen, a dressing of manure (as far as the farm will furnish it,) should be hauled over the ground, but left in heaps till the proper time for ploughing, when it should be spread and *immediately* ploughed in. The field, thus improved, might now grow two crops of corn in succession, and then be again sowed in wheat and clover, and treated as in the first instance.

A second field, in the mean time, might undergo the same system of improvement, and so on in succession, till all the cultivated land shall have been *renovated*. If the soil is naturally rich, and has not been much reduced by cultivation, instead of three crops of clover in succession, two might be adopted, when the rotation would be as follows, clover, clover, corn, corn, wheat. This rotation would require five fields, two of which would be annually in corn, two in clover, and one in wheat; so that in every five years each field would produce two crops of corn, two of clover, and one of wheat.

But if the soil has been much reduced, a shift of six fields would be necessary, and the rotation as recommended above, to wit: three years in clover, two in corn, and one in wheat, which would leave three fields annually in clover, two in corn, and one in wheat. This rotation, with a judicious application of manure, would gradually renovate any of our naturally rich calcareous land, where the soil has not been washed off. When land is naturally rich, and has not been much reduced by bad husbandry, the following rotation will be found very convenient and profitable, particularly for small farms. Corn, wheat, clover and so on in succession. This will require but three fields, and the farmer will every year have one field in corn, one in wheat, and one in clover, besides the advantage of pasturing the clover after his wheat comes off. But the clover must be suffered to go unpastured after the first of July, and be ploughed in, as herein before directed. This will not only provide a good dressing of manure for the succeeding corn crop, but will cover up such a quantity of clover seed as will furnish an abundant supply for the wheat crop, which is to succeed the corn crop. One

* This is one of four essays on different subjects to all of which were awarded the highest prize offered by the Kentucky State Agricultural Society. The author, Judge Beatty, is one of the most judicious and successful practical farmers in Kentucky.—ED. F. R.

* In a letter addressed to the Rev. H. Colman, agricultural commissioner of Massachusetts, by Professor Samuel L. Dana, and published in the 48th and 49th numbers of the Franklin Farmer, for the year 1840, it is shown, very satisfactorily, that ploughing in green crops is not as beneficial to land, as ploughing them in after they become thoroughly dry. This is a recent and important discovery. The ploughing in of the second crop of clover should, therefore, be delayed until it is not only ripe, but completely cured.

great advantage attending this rotation is, that it wholly saves the expense and trouble of sowing clover seed among the growing wheat,. It also affords two grain crops in every three years. This, in England. would be considered as too exhausting. But I am persuaded our rich lands of the west, which have not been much reduced by bad husbandry, will bear this course of cropping without deteriorating the soil, especially if an upper dressing of manure is applied, preceding each corn crop, that is to say every third year.

In clay soils the corn crop should occur less frequently. The rotation, in a shift of four fields, might be clover, clover, corn, wheat. Or, where the soil is naturally thin, or has been much reduced by bad husbandry, the rotation might be three crops of clover and one of corn, and one of wheat. Clover should, in these courses, be the preparatory crop for corn, and ploughed in as herein before directed. and a top-dressing of manure be applied, to the extent the farm will afford. In clay soils the wheat crop should be assisted by a dressing of plaster of Paris, (sulphate of lime,) from a peck to a bushel per acre. If the smaller quantity only is applied, it may be stirred in the wheat, having been previously moistened for that purpose, when about to sow. If the larger quantity is used, (and it is best to do so, if to be had,) it should be sowed broad cast, at the time of sowing the clover seed, in February. The corn crop will also be much improved by applying half a table spoonful to each hill of corn, either at the time of planting or as soon as the corn comes up.*

For farmers who do not desire to raise wheat, the following rotation will be found convenient and profitable. Upon rich lands, which have not been much reduced by bad husbandry, corn, corn, rye, rye, the two latter to be fed off *on the ground.* In this course, the second crop of corn will be followed by rye, sowed in the fall, pastured the next winter and spring, till the 15th of April, and then suffered to go to seed. When ripe it should be fed off to hogs and other stock *on the ground.* About September, or so soon as the fall rains cause the remains of the rye on the ground to sprout, the stock should be taken off. There will be sufficient rye left to seed the ground, and so soon as it shall have attained a sufficient growth, it may again be pastured through the following winter and spring, till the middle of April, when it should, a second time, be suffered to go to seed and be fed off as before, until the proper period for removing the stock. It may again be pastured during the following winter. But care should be taken not to leave stock on after the frost gets out of the ground, as this would cause the soil to break up cloddy and render it less productive. By the time the ground becomes dry enough for ploughing, there will be a thick coat of young rye, which, if well turned under, will afford a light dressing of manure for the succeeding crop of corn.

This rotation will require but two fields, and will be very convenient to hemp growers and graziers, who do not wish to cultivate wheat crops. In consequence of the rye being fed off upon the ground, the foregoing rotation will rather improve than exhaust the soil. But to restore, speedily, that which has been exhausted, there should be two crops of clover, succeeding the rye crop; or a third crop of rye may be raised to advantage, by ploughing the ground after the second crop is fed off, from the first to the middle of September. Rye will not do well the third year without ploughing the ground, in consequence of white clover and other grasses spreading over the ground, but a single ploughing may suffice for two additional crops of rye.

Where the practice of grazing extensively prevails, large portions of the grazier's farm are kept in blue grass, and pastured for a number of years in succession. These pasture grounds, often having been kept a long period in grass, are occasionally ploughed up, and planted in corn. This is certainly a fine preparation for that crop; and if the period, during which the land is kept in grass, in proportion to the time it has been in corn, be considerable, it is well adapted to the improvement of land. But if proper care be not taken in ploughing a stiff blue grass sod, there will be great difficulty, in cultivating the corn crop. If, however, the proper method is adopted these difficulties may be avoided. There are two modes of converting blue grass sod into arable ground, which may be practised to advantage. One is to put a strong team to a large plough, suitable for turning over a stiff sod. The plough should have a cutter attached to it, for the purpose of cutting the turf, and thus enable the plough to turn it over to the depth of five or six inches, and lay it so smoothly as to have the grass side flat, and the mould alone exposed. The harrow should follow in the same direction with the plough, and by running several times over the ground the interstices will be filled up and the turf so completely buried that the grass cannot readily grow. If this operation be performed in the fall or early in the winter, the sod will be so completely rotted, by the time it is necessary to commence ploughing for corn in the spring, as to admit of its being stirred advantageously. But if the sod be turned over in the spring, then it will be proper, by repeated harrowing, to form a sufficient depth of mould to admit of laying off the ground for corn without turning up the sod. By using light ploughs and small harrows, to run between the corn, or the corn cultivator, the crop may be cultivated without turning up the sod, and with very little labor. By the following year the sod will be completely decomposed, and will leave the ground mellow and in fine condition for a crop.

If the operation of turning the sod be well performed, this mode of cultivating corn will be attended with great advantages. The sod beneath will keep the ground light, and the yield, if the season be favorable, will be very large. If, however, the land do not lie favorable for turning sod, (if for instance, the ground is so situated that the sod must, in part, be thrown up hill,) it may be difficult to turn it over so as to bury the green sward. In that case it will be very troublesome to cultivate.

The other method of managing blue grass sod is more effectual in obviating the difficulties arising from the unfavorableness of the ground for turning sod, and ought to be preferred by all farm-

* See a long note on the benefit of plaster of Paris, in the general essay on agriculture.

ers, who have an opportunity of procuring suitable implements.

A properly constructed plough with a *cutter* attached to it, should merely skim off the green sward to the depth of an inch or two, which should be followed by another plough, running in the same furrows, to throw up the mould to the depth of five or six inches. Thus, after the first round, a deep furrow would be formed, into the bottom of which the skimming plough would throw the green sward skimmed off in the second round, which would be covered to the depth of five or six inches by the second plough, and so on in succession, till the whole field is ploughed. In this way the green sward is detached, and buried so deep that it need not be disturbed in the process of cultivating the crop. Being entirely covered, it will serve the double purpose of keeping the ground light and furnishing a dressing of manure.

If the same ground upon which corn has been cultivated the preceding year, is intended to be again cultivated in corn, it is very important that it should be trodden as little as possible by stock, especially when the ground is rendered soft by rains, or by freezing and thawing. Instead of feeding upon the ground the small remains of fodder which are left, after the corn is pulled, it is much better to cut up the corn, and put it in shocks, *after it is fully ripe.* The fodder may be fed off, either with corn, or after the corn has been *shucked*, according to circumstances. If the corn has been detached from the fodder, the latter ought to be fed in suitable feeding pens, with a view to the saving of manure. And it would always be advisable to haul it off, in large slides, having suitable shelving, when the ground is either frozen, covered with snow, or not too much softened by rains. That there may not be a necessity of hauling fodder when the ground is so soft as to injure it by treading, a suitable time should be selected for hauling and putting in rick, a quantity of fodder, to be kept as a *reserve*, and to be fed from only when the weather is not suitable for hauling from the field. The rick should be made by setting the fodder against poles, and should, of course, be as convenient to the feeding pen as possible.

The cutting up of corn, and removing the fodder to feeding pens would not only occasion the saving of much manure, but would leave the field in good condition for early ploughing, thus affording the ground the benefit of the spring frosts which will greatly assist in pulverizing the soil. But a still greater benefit would result from preventing the corn ground being trodden by stock, when in a soft state, during the winter and spring months.

If ground has been sufficiently renovated and properly prepared for a crop of corn, the process of cultivation is very simple. The ploughing should be deep and thorough, and if practicable, early enough to afford the ground the benefit of the spring freezes. If ploughed early in the winter, or late in the preceding fall it would be still better, as the soil would be thereby more completely pulverized, a matter of great importance in the culture of the corn crop. Except where sod is turned over, the ground should be suffered to lie in a rough state till about the time of laying off for planting, and should be then well harrowed, taking care that this operation be performed when the ground is sufficiently dry to pulverize well. The harrowing will destroy any young weeds which may have sprung up, and will level the ground preparatory to checkering it off for planting. It should now be laid off one way at the proper distance for planting, with a large plough, cutting the furrow as deep as can be conveniently done. A second plough, suitable for the purpose (a well constructed shovel or coulter plough will answer) should follow in the same furrow, to loosen the ground as deep as possible. When a field is thus laid off one way, it should, as soon as convenient be crossed in the other direction for planting, leaving the rows equally distant each way. The laying off for planting should be done with a small, steady running one horse plough, which should not cut a furrow more than two or three inches deep. This method would leave a deep loose soil at the intersection of the two furrows, and would remove the clods from the furrow so as not to be in the way in covering corn. Careful droppers should follow the plough, or ploughs, laying off the second way, who should be particular to drop the corn *precisely* at the *intersection* of the two furrows, and the hands following with the hoes should be careful to cover the corn with fine mould, (cutting the clods from the hill, if any) precisely at the place where it was dropped, except when they discover an error in dropping. Attention to the foregoing directions is important for two purposes. 1. That the corn may be planted where it will have immediately beneath its roots a deep loose soil, which they can penetrate with ease; and, 2. That the rows of corn may be straight, *both ways*, and thus enable the ploughs with very little aid from the hoes to keep the corn clear of weeds and grass. A shallow furrow in laying off the second way is attended with several advantages. 1. The ground is not so apt to *wash* during heavy rains, as when the furrow is broad and deep. 2. The clods will not so readily fall back into the furrow. 3. The corn will not be so liable to be covered by clods rolling on it at the first ploughing, in consequence of there being a greater width between the furrows.

There are various opinions as to the proper distance at which corn should be planted. This must depend upon the nature of the soils, its degree of fertility, and *the number of stalks left in a hill.* My own experience inclines me to the opinion that four feet apart, each way, and three stalks in a hill, is the proper medium for the rich calcareous soil of Kentucky, having a deep vegetable mould. This would give 2722 5-10 hills, 8167 stalks per acre, supposing each hill to have its full complement. It would be prudent to drop four or five grains in each hill, and thin the corn at the proper period, to three stalks in each hill. If large corn be planted, each hundred good ears, in *ordinary* seasons, will be equivalent to a bushel; and, consequently, if each hill will average three ears (the double ears will usually make up for the missing stalks) the product will be 81⅔ bushels per acre. If the season be favorable, the yield may be still greater.*

* I have gathered a part of my crop for the present year, planted and cultivated as above directed, and the product is from 95 to 100 bushels per acre. The early

But if the ground has been much reduced by bad husbandry, or the corn be planted in a clay soil, it should be thinned to two stalks in a hill. This would give 5445 stalks to the acre, if none be missing, and a product of 54 45-100 bushels. supposing each hundred ears to make a bushel. But it must be recollected, that if the soil is not good the ears may be less, and the product consequently diminished.

If oak land be of the poorer kind, it may be necessary to increase the distance. If 4½ feet should be deemed necessary this would give 2150 hills, and 4300 stalks per acre, allowing two for each hill.

Ground may be so very poor as not to be capable of sustaining more than one stalk in a hill. It might then be planted four feet each way, which would give 2722 stalks per acre.

Some farmers are of opinion, that *drilling* is a better method of planting to secure large crops. With extraordinary care in planting and cultivating a small crop, it is probable a larger yield may be obtained. But the advantages of a small increase of product *per acre* will not be equivalent to the increased labor in cultivating the corn, cutting, shocking, hauling of fodder, &c. I would, therefore, by no means recommend the drilling of corn as a general practice.

When planted in squares it can be ploughed both ways, be better cultivated and with much less manual labor. As soon after the corn is planted as practicable, a single furrow with a shovel plough should be run between the rows, in a direction opposite to that in which it was planted. This is an effectual security against the corn being washed up by heavy rains, and prepares the ground for the next ploughing, which should be in the direction in which it was planted, unless the ground be very foul. In that case it may be proper to run two additional furrows in which the shovel plough had previously run, throwing the dirt from the corn.

If the ground be tolerably level, and have but few stumps in it, a large harrow may be used to advantage, when the corn is about four or five inches high. The horses by which the harrow is drawn should be made to walk between alternate rows, and the harrow dragged over the corn, having previously removed such of the teeth as would come in contact with the young plants. This process is deemed very important by some farmers in the cultivation of the crop; and where the ground is very weedy, is well calculated to keep them under till the corn is large enough to hoe. But if the ground in which the corn is planted has been sufficiently freed from weeds, and properly prepared by previous ploughing and harrowing, the after harrowing may be dispensed with.

A small barshare, Dudley, or coulter, or McCormack plough may be next used, running the bar next the corn, and throwing the dirt in the middle. The hoes should follow to clear the hills from weeds and grass; or, if they be very small, cutting away those adjacent to the young plants, and covering up those standing in the hill, by drawing some light mould around the corn. It is very important in this stage of the crop to destroy the weeds and grass growing among the young plants. If the operation be well performed the plough alone will be sufficient afterwards to keep the corn free from weeds and grass.

Various opinions are entertained as to the best kind of plough to be used in the cultivation of the corn crop. After the ploughing which is accompanied by the hoes, I have used the shovel plough in preference to all others. It is the most economical, being the least expensive, in the first instance, and costs less to keep it in repair. It requires a narrower head land at the end of the rows for turning, and in consequence of the ease with which it can be managed will break down less corn. It ploughs deeper, throws a wider furrow, leaves the ground in a state less liable to wash, and works the corn better, and does more work than any plough I have tried. It must be remarked, however, that if corn ground is allowed to become foul with grass, especially foxtail, the shovel plough will not answer as well as some others, after the grass has obtained a complete set, and a luxuriant growth. But if taken in time, no plough answers better to keep it under; and corn should be ploughed so frequently as to prevent grass from getting to such a size as not to be easily destroyed by *stirring* the ground. It should be ploughed alternately, each way, and deep enough to *cut the roots* between the rows. This, so far from injuring the corn, will much assist its growth, as young roots will quickly shoot forth, whenever the old ones are broken, and these will furnish nutrition to the growing corn more rapidly than the old ones. In a word, there need be no fear of injuring corn by cultivating it too much, if care be taken to work it only when the ground is in proper condition. My experience is not sufficient to enable me to speak of the *cultivator* as a substitute for the shovel plough. It is well worthy of trial, and where the ground is free from stumps, or nearly so, it might be used to great advantage in preparing corn ground for sowing wheat, and in putting in that crop, as it would leave a more level surface than the shovel plough. But if the plough should be preferred, so far as my experience extends, next to the shovel, I would recommend the Dudley plough. This is somewhat like the McCormack plough, except that it is made of wrought, instead of cast iron, and is in one entire piece, instead of having a detached mould board. In that respect it has the advantage of the McCormack plough, which, at the joining of the share and mould board, cannot make so nice a fit, as where it is all in one piece. It is also lighter and *scours*, or wears smooth, and kept so much easier than cast iron mould boards, the latter being much more liable to rust than wrought iron. Its greatest disadvantage is the difficulty of repairing by unskilful smiths.

The number of times corn should be ploughed, must depend upon the nature of the soil, and other circumstances, of which the judicious farmer will be the best judge. In grass lands, which are generally, in a great degree, free from weeds, three or four ploughings may suffice; in very weedy ground, five or six may be necessary. In general nothing is lost by frequent ploughing, as the crop will be better, and the weeds will be prevented from seeding the ground, for a future crop.

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part of the season was entirely too wet, but after the 1st of July was very favorable.

Many farmers cease ploughing their corn at the commencement of harvest. The consequence is that the weeds run to seed, and ripen, which not only injures the crop, but unnecessarily exhausts the ground (for all vegetables exhaust much more at the time of ripening their seed than at any other time,) and moreover furnishes a crop of seed, for the ensuing year. Corn should always be ploughed, at least *once*, and, if very weedy, *twice*, after harvest. The intervals between the ploughing, after the hoeing operation is completed, should not exceed from eight to twelve days. It is particularly important to stir the corn ground *after heavy rains*, to prevent it from baking. If suffered to lie long after heavy baking rains, when the crop is in an advanced stage, the corn is very apt to *fire* when again ploughed. This is a great and serious injury to the crop, and one from which it never entirely recovers. It is very important, therefore, that it should be ploughed as soon as practicable, after each heavy rain, taking care not to commence ploughing where the ground is too wet, that is, when there is so much moisture in it as to make the soil adhere, like half wet mortar. When it is sufficiently dry to crumble into a fine mould, and not before, should the ploughs commence running, after much rain has fallen. To plough ground when very wet, is exceedingly injurious, and should always be avoided. Long continued rains will, occasionally, severely task the *patience* of the farmer, when his corn crop is suffering, but *patience*, on occasions of this kind, is a virtue which will generally be well rewarded, by an increased product of his corn crop, besides preserving his land from injury by ploughing it when too wet.

Corn is frequently injured by cutting it too green. This is done by many farmers under the mistaken idea, that the fodder will be better if the corn is cut while the blades are green. The reverse is true. If cut while the blades are green, and put in shock, the fodder will scarcely be fit for any kind of stock. Thus, by attempting to make superior fodder, the farmer frequently raises both fodder and corn. The cutting of corn should not be commenced until all the blades below, and nearly all above the ear are dry. When only two or three blades above the ear show any remains of the green color; and when such is the general state of the field, the operation of cutting up corn should be commenced, (taking care to begin with that part of the crop which is most advanced,) and should be completed as rapidly as possible, as the blades, after they become dry, are liable to injury from dews and rain. Hemp hooks are most convenient instruments for cutting. It should be cut about a foot from the ground, as it will stand much better in shocks, when the ear is brought nearer to the ground than it would do if the corn were cut close to the earth. There will also be less weight to handle in shocking, hauling, ricking, feeding &c., while nothing will be lost, that is fit for fodder. From fourteen to sixteen hills square should be put in each shock. The former will contain 196 hills, and will give nearly fourteen shocks to the acre, supposing the corn to be planted four feet apart, each way. The latter will give 10$\frac{3}{4}$ shocks nearly per acre. I prefer the former, if the corn be large, and stands well in the hill, that is, three stalks in each. But if it does not stand regular in the hill, or if the stalks be of moderate size, then sixteen hills square will make the shocks of a better size.

The saving of corn in the shock, without injury, depends altogether upon the manner in which the shocks are put up. If they are set up so as to stand firmly, there is no danger of the corn injuring: but if the operation is carelessly, or unskilfully performed, they are liable to twist round, and settle down, so as to leave the top open. When this hapens the rain will penetrate the shocks, ruin the fodder, and greatly injure the corn. Shocks should be thus constructed. The stalks of four hills (left standing for the purpose,) should be inclined towards each other, and tied by their tops, so as to form a kind of cone over the centre between the four hills. When this is done, while some hands are cutting, those, who best understand the process of shocking should gather the corn by armsful, and set it up around the four hills, thus tied together, setting the first four armsful in the intervals between the bent corn, bringing the buts so near to each other as to make the stalks occupy nearly a perpendicular position. In like manner the successive armsful should be set *regularly* all around the four hills of corn, tied as above directed, still keeping the buts well pressed together at the bottom, so that the pressure at the top towards the centre, may not be so great as to break down the stalks tied together. This should be further guarded against by placing equal quantities of corn all around, so that the pressure may be equal from all sides towards the centre. The tops of the corn stalks being smaller than the buts, they will naturally incline inwards, so soon as the fodder becomes dampened by rain or dew; but this inclination should not be very great, otherwise the shocks will not so well turn the rain; besides, as the corn may not be equally distributed all around the shocks, the pressure will be unequal towards the centre, and the effect of this inequality will be greater in proportion as the corn varies from a perpendicular position. Care should also be taken to set up the corn, so as not to give it an inclination to the right or left, or *a leaning sideways*. If this be not attended to, the shock in settling together—as it will when it becomes damp by dew or rain—will be certain to twist round, and cause the top of the shock to open, and thus expose it to great injury from the weather. This point is the most important thing to be attended to, in shocking corn, an operation upon which the complete preservation of the crop depends. That part of the corn which is not intended to be fed way with the fodder, must of course, be shucked in the field. This should be done while the fodder is damp, otherwise there will be a considerable loss by its crumbling. As fast as the corn is shucked, the fodder should again be put in shock, and this cannot be well done, when it is dry. Hence, after a damp spell, or when the weather is warm and giving, is the best time for shucking corn out of the shocks. If this operation is in progress during the feeding season, a part of the fodder may be hauled at once, to the feeding pen, and to a rick adjoining it, and so far the trouble of re-shocking may be avoided.

Some farmers do not pursue the practice of cutting up their corn, and among these, two different methods of saving their crops prevail. By some it is contended that shucking the corn upon the stalks, as they stand in the field, and hauling the

corn thence, to the crib, is the most economical, or greatest saving of labor. The practice with others is to pull their corn, haul it to a suitable place, and shuck, and then crib it. There can be no doubt that the same number of hands will, by the former method, secure in the crib, a greater quantity of the corn, in the same time, than by the latter.

The plan is, however, subject to two objections. 1st. By this method all the corn, good and bad, must be cribbed together. 2d. The shucks must either be lost, or stock turned in the cornfield to feed upon them. If this be done, the ground will be much injured by the treading of the stock, when rendered soft by rains, or by freezing and thawing. This evil may, in some degree, be avoided by turning the stock into the field *only* when the ground is fozen hard. But our winters are so open, and the changes in the weather so frequent and sudden, as to defeat almost every precaution of this kind. In point of fact we rarely see farmers take the trouble to have their stock removed at every sudden change of the weather, particularly when that change is accompanied by heavy, and long continued rains. *Comfort* is most generally consulted, on occasions of this kind, and the cattle are left to feed themselves rather than encounter the trouble and inconvenience of removing them to a place where they may be fed. And thus the *ground* is left to suffer rather than expose the *farmer* or his hands to inconvenience.

The other plan is somewhat more tedious, and (if there be no shelter under which to throw the corn as it is hauled, and to shuck it, and save the shucks,) is liable to more serious objections than the other.

If, however, the farmer will provide himself with a cheap and suitable building, under which his corn can be protected while he is gathering, hauling and shucking it; and where he can save, salt, and stow away his shucks till the time for feeding them, the latter plan will, perhaps, be entitled to the preference. Much of the corn, according to this plan, can be shucked during bad weather. It can be assorted, and the different kinds hauled to the appropriate places for feeding. The shucks can be salted, and secured from the weather, and fed away without much inconvenience in bad weather. The stock, fed upon them, will furnish some manure; and above all, this plan will keep the stock from injuring the land, by treading it when rendered soft by rains, and by freezing and thawing. If this plan be adopted, there should be a crib, for holding the *nubbin* corn, and that which is unsound, so situated that this part of the corn may at once be put into it, and thus leave none but the sound corn to be removed to distant cribs. The process of assorting the corn may thus be performed while shucking it, and the defective parts, by means of baskets, deposited in the adjoining crib; or it may be assorted as the sound corn is thrown into the wagon to haul to the appropriate crib, and put into the crib intended for it, while the wagon is unloading.

A. BEATTY.

September, 1840.

NOTES TO THE ESSAY ON TOBACCO CULTURE.

(Continued from page 177.)

(Note A.)

This essay is adapted more particularly to the culture of the *bright* Kitefoot, Maryland tobacco. The writer of these notes does not pretend to know any thing about the management of that particular variety, nor would he in any way call in question the views or skill of the writer, or presume himself to prescribe for its management. There are however in its culture, and process of management for market, many things in common with the practice of the best planters in Virginia, and many in which they differ. It is the design, therefore, to point out in a brief way those particulars in which they disagree. It will be borne in mind that the Maryland tobacco is sold in a very different market, and put to a very different use from that which is made in Virginia. Although in Baltimore it commands a higher price than ours, yet in Petersburg, or Richmond, it would be considered thin, chaffy, and almost valueless.

(Note B.)

This has not been the impression of the best tobacco growers in Virginia. Owing perhaps to the peculiarity of our soil, or more probably to the dislike which they have to the thin bright tobacco, they prefer that it should not grow off too rapidly, or mature too early. It is always a matter of regret with them if the seasons force their plants so as to compel them to put them in the hills before the 1st of June—the 10th is much more preferred—though when their plants are large enough, and the weather is suitable, they avail themselves of it for fear that there may not be "seasons" as they call it, to plant out, when they might desire it. That which is planted out about the 10th or 15th of June, grows broader leafed and heavier, and is thrown back later to receive the heavy dews of August and September, which our planters consider very important to make it thicken and ripen. Our writer's opinion, too, of the importance of rapid growth to make a fine article, will not apply to the facts of the case in Virginia. We believe, too, that it is generally conceded that the thin, poor tobacco of Kentucky, is owing to the rapid and luxuriant growth which their fertile soil gives it. Within the last few years, however, the character of that tobacco has very much improved; owing no doubt in part to the improved management, but not less is due to the improved condition of soil for that particular crop. The exuberance of fertility which formerly produced a coarse and spongy article, has been worn down to a more healthy fertility.

(Note C.)

The practice of the best planters in the middle counties in Virginia, (and we think they grow the best tobacco in the state,) is to fallow up their rich clover fields in the autumn as soon as it is well matured, letting it remain to rot till the spring, when it is ploughed and reploughed to mix the manure before hilling and planting. Some of the prettiest "pie-bald," fawn-like tobacco we have ever seen in the field, has been made under such circumstances, and brought the highest prices in our markets. Another successful plan is to fallow

in the autumn their herdsgrass meadows, (for they have their regular rotations for that purpose,) which they, by tillage, in the spring prepare for the crop. The decaying roots and vegetable matter feed and nourish the plant during its growth. They continue to cultivate their grass land for two or three years, when it begins to get close or clammy for want of the vegetable matter which has been exhausted, and which is considered so important; it is again seeded down in small grain and grass. Others again seed the land which is intended for tobacco, in oats, which, when matured, are turned in with the plough. The *volunteer* oats will perhaps seed the land for the next spring, if they are not killed by the frost, or the land can be again sown if the owner thinks it not rich enough. More than one crop however is rarely necessary to enrich it for one or two years, on land which we may suppose to be in good heart before. It is also very common to apply half rotted straw and other litter from the farm pen on the land in the spring, to be ploughed and mixed in with the soil before hilling, and thus it rots and feeds the plant while growing as under the systems before mentioned. It is perhaps useless to speak of the destructive practice of cutting down forests, so long and extensively used in Virginia for the cultivation of tobacco. As desirable as virgin soil is to the growers of fine tobacco, but few will have that kind of land left many years longer.

(*Note D.*)

We think that by fallowing at the proper time in the autumn, the clover would be converted into manure, and thereby the difficulty which the writer alludes to would be obviated. There is another view of the subject which we should be glad to see discussed by some of our able agriculturists. It is this. Whether the protection from cold afforded by clover or other vegetable covering is of more service to the soil, and to the subsequent crop, than would be derived from the same covering when converted into manure by the autumnal fallow. It is the opinion of some that the freezing of land improves it, and prepares it for the coming crop. And yet it has not escaped the observation of all that wherever the land has been protected from frost by a stack, or in any other way, although no vegetable matter may have remained, to enrich it, that the subsequent crop will show the advantage.

(*Note E.*)

A *free, light, gray*, loamy soil, is preferable for the growth of tobacco—that medium texture, I should say, which was equally removed from the sand and the clay. It was remarked by a very *intelligent, observant*, and *successful* farmer, Mr. Richard Venable, of Prince Edward county, that the gray lands of that county produced the finest tobacco that he ever saw. And in connexion with the same subject, he said that the rich low grounds of James River were comparatively inferior for that crop. He thought it probable that the latter soil was more or less calcareous from deposite brought down from the lime-stone country of the Blue Ridge, and he did not think that lime-stone lands produced the finest tobacco. If this be the fact, may not the inferior quality of the article in Kentucky be accounted for?

(*Note F.*)

The application of water to the plant-beds by throwing it, is probably not the best mode. It is disposed to bake the land. It would be attended with much better effects if the water were dammed above the bed and conducted round it, to ooze through from little rivulets. Or another mode of irrigation, which is perhaps equally good, can be effected by placing barrels in different parts of the bed, containing water, with small gimlet holes for it to trickle through.

(*Note G.*)

As has been remarked by our writer, the fly is always most troublesome in cold and dry seasons. The best mode of protection which we have known, and we have thought it almost a preventive, is what the writer has partially alluded to. Warmth and moisture *are* the opposites of cold and dryness. The beds should be on some southern exposure, and kept in a moist condition, either irrigated, (which if only one is used is preferable,) or by covering pretty thickly with brush. We would not use pine brush, as they exclude the sun too much, and there is something cold in their nature; but simply brush, which serves the two-fold purpose of keeping the land moist and preventing it from washing, if there should be hard rains. To cover the beds over with well rotted stable manure is found to be a valuable auxiliary to irrigation. We have kept the brush on till the plants were out of the reach of the fly, or within a few weeks of planting. They are then removed to let the plants harden by the action of the sun before planting. If it is necessary to remove them for the purpose of irrigating or manuring, or hand-weeding, or trampling the beds, they must be laid on again, and when they are finally removed, it should be gradually, or during a cloudy or wet spell.

(*Note H.*)

The beds which are sown reasonably early, produce plants with the best roots, which is important to their living when planted out. It is astonishing how hardy the plant is when very young. Contrary to the usual order of nature, it will stand ten times the degree of cold that an old and ripe plant will.

(*Note I.*)

If the beds are manured with stable manure, it is thought advisable to throw it in a heap or put it in barrels, (which is perhaps the best) to ferment for ten days or two weeks, to destroy the vegetative principles in the seed. The remark of the writer about the quantity of seed necessary to be sown is very correct. Every observant planter knows that two plants, even *indifferent*, put into the hill *together*, will more certainly live than one good one planted alone. A plain old farmer of our acquaintance, who never failed of having a 'stand," used to remark that "while other people were *replanting*, he was thinning." It is very easy to pull up one, if both should grow, or to turn one down and cover it up.

(*Note J.*)

The process of "*topping*" is conducted by the most skilful and prudent hands on the farm. A few leaves, say four or five, are broken off from the bottom and usually thrown away, which is called "*priming*," and then so much of the top is

taken off as will leave from six to ten leaves, (according to the season of the year and the vigor of the plant,) to grow and mature. No judicious planter would think of leaving more than ten leaves to make Virginia tobacco, though we have been told that Maryland tobacco was frequently topped as high as sixteen or eighteen leaves. If not topped too high, the upper leaves will be the largest and ripen the first. It would moreover be considered most slovenly management, and great waste of the strength of the vegetative process, to permit the plant to *button* before it is topped. Virginia tobacco, to be valuable, should be *thick*, and *rich*, and *oily;* but when permitted to button before it is topped, it is thin and chaffy.

The writer says nothing about the process of priming, by which we infer that it is not practised in Maryland; indeed we have heard it was not. Although, as we have stated, the reverse is the practice with the majority of the best planters in Virginia, yet there are some few whose success both for the quantity and quality of their tobacco would entitle them to rank with the foremost, whose practice has not been for many years to *prime*. They top as high as they would do if the priming had been done. They maintain that those leaves (which are always small and take very little nourishment from the plant) serve to protect the more valuable ones above from the dust. They are very little in the way of hilling, and if they cover one occasionally, there is nothing lost. The quantity of *fine* and *passed* tobacco is believed to be larger, and the offal, or "*lugs*," as they are called, are also increased, and the price is thought to be fully equal to that managed by *priming*. We have ourselves made some experiments on this system, for several years, and are inclined to think favorably of it. This may look a little heretical, but be it so; truth disdains to be fettered by forms and dogmas.

(Note K.)

The wood should be cut in the previous winter and hauled to the barns at convenient times before the busy season of firing tobacco begins. The wood is better, too, from being half seasoned—the fire is more uniform—there is less smoke and less sap and steam rising to coddle and scald the tobacco which itself already contains too much fluid. Large wood is best, either split or otherwise.

(Note L.)

Many of our best farmers differ in their management of tobacco after it is carried to the barn. All agree in the necessity of its being ripe before it is cut. One portion, (though we think fewer than formerly) are in the practice of taking it into the barn as soon as it is cut, and yellowing it with fire, and then curing it. The plan however most in use, and which we think most advisable, is to scaffold it to be killed and yellowed by the sun, from three to six or eight days, according to the weather. It should be crowded on the scaffold, and if the weather is warm it will be in a condition to house and fire in a few days. This condition is known by its emitting a certain mellow odor, and by its beginning to assume a yellow appearance, somewhat like a hickory leaf before it falls in autumn, or perhaps spotted more like the shell of a highland terrapin. It should be remarked that the practice of splitting the stalk when the tobacco is cut is universal in Virginia, which makes it dry quicker and also makes it more convenient to hang over the stick. Not more than eight or ten plants should be put on each stick, and the respective sticks when placed in the barn should not be nearer than ten inches apart. Indeed it is desirable, if there is a plenty of house room, that the plants should not touch each other, as they are liable to be scalded by the quantity of hot sap which must pass off during the curing process. After the tobacco has been taken into the house and properly regulated as to distances, a fire should be built across the house under each tier. These fires should at first be moderate, and increased very gradually from day to day as the tobacco dries and cures, till it is thoroughly cured up. Some, however, stop the fires when the stems have been killed and turn dark, leaving them to dry up, or apply the fire again some days after. We have found it much easier to regulate the heat by building the fires between two large logs placed parallel. If the heat gets too high, they can be drawn farther asunder, or put nearer, if too low. A third log on the top is generally necessary as the curing operation is brought to a close. It requires the most careful, vigilant, and judicious hands on the farm to attend to the curing, nor can the most careful and detailed account of the operation be substituted for experience.

(Note M.)

It is best that tobacco should not be caught in rain after it is cut, neither is it desirable to cut it immediately after rain.

(Note N.)

In Virginia our tobacco barns are usually constructed of logs squared at the ends, and they are cellared 18 inches, or 2 feet, to secure the logs from the action of the fire. Some planters build their houses very close; but there is a great deal of good sense in the remarks of our writer on this subject. It is best to have them close for some feet near the ground to prevent the action of the wind on the fire.

(Note O.)

Ground leaves are not gathered with us before the plant is cut. There are always inferior leaves near the ground, which are permitted to remain and cure on the stalk. When the stripping is going on, they are taken off and tied to themselves and are called "*lugs*."

(Note P.)

Many of the writer's remarks are judicious and correct; but it is very apparent that the management after the crop is cured is not in the same style of our best Virginia planters. He speaks correctly when he says that the greatest skill of the planter is needed from this time till it is brought to market. Indeed we may say that almost every thing depends upon the subsequent treatment. We have seen very indifferent crops, by skilful management, command the finest prices; and on the contrary, the richest and best cured have been sacrificed for paltry sums. Hence the high wages which the judicious overseers have commanded in the tobacco region. The difference in price between two hogsheads well managed, and the same number indifferently managed, would pay his wages, as high as they may appear. We will proceed to state somewhat in detail the dif-

ferent operations by which it is prepared for market. No crop perhaps requires such unremitting attention, vigilance, and system. The crop is already cured and hanging in the house; but as our writer remarks, it should not be permitted to "come and go," as the planters say; that is, it should not be allowed to come in "order" every wet season, as it will change the color which was given it in curing. Small fires should be put under it in damp seasons to keep it dry. It should hang till after a few keen north-west winds in November have thoroughly seasoned and cured the stems, some of which would easily mould without it. It is now to be taken down, or "*struck*," as it is called, in tolerably supple order, as there is not much danger of its moulding during the winter's cold, (which is the time for stripping,) and as it should be shaken and whipped moderately to get off the dirt. It is now to be laid away, or bulked straight upon the sticks, elevated on logs or skids to keep it off the damp floor, and covered carefully with straw and sticks. Now the process of stripping begins. The best judges of tobacco are made what are called "*sorters*," whose business it is to take up plant by plant, and separate according to quality into four parcels—"*lugs*," "*short*," second, and first quality. There are strippers at each of those respective parcels, who strip and tie up the leaves in bundles containing from five to eight, according to the size of the leaf. Before it is tied, the bundle should be held up to see that the leaves are all of the same length. Small, nice leaves are to be kept by each stripper to tie with. He should never take a good large leaf for that purpose, which would be bad economy. The top of the bundle should be covered by the tying, so that the ruggedness of the leaves do not show, and the tie be continued down about two inches. The stripping being gone through, each quality should be bulked to itself. A floor is made of the tobacco sticks, raised from the ground. Two or three of the hands now place themselves in a row, one of them takes up two bundles and places the but-ends even, and straightens them. They are then passed through his hands by squeezing from the top to the bottom, and passed on to the next, who goes through the same operation, and then the next, and so on, till it is in the hands of the bulker, who is fixed on the floor above described, on his knees. He presses the bundles close side by side with the buts out, and pressed down with the knees, and is by that time supplied with more, which are disposed of in like manner, till he passes through the whole length of the floor. He now begins and reverses the packing, so as to have the tails lapped one-half or two-thirds, and the buts facing at opposite sides. Thus the process continues till the whole is disposed of, which is called "*windrows*." The whole is now covered with sticks and weighted with logs of wood or rocks, and straw thrown about to prevent too much exposure. When the buts are thus turned out, there is not much danger of its moulding, though it is best to examine it in warm and moist spells. It remains in this condition till some time in March, when it is hung up on small tobacco sticks to be dried out by the cold hard winds. It must not be permitted to "come and go" by the changes of the season; but after being once thoroughly dried, it must be again struck for "prizing" in some warm season, when it is just soft enough to keep from breaking. It must now be bulked as in the former case, with this exception, that one bundle only is taken through the process at a time, and packed down as straight as possible for prizing, and well weighted. It is a matter of the greatest importance that the bulk should be so protected from the changes of the atmosphere that it will remain precisely in the order in which it was "*struck*," as it is called. With this object, it is the practice of some (and we ourselves adopted it, and think it most invaluable) to have tight boxes in which it is packed. They should hold about one hogshead of tobacco each, and are made about 10 feet long and 4 wide, with a lid to fit in close. The workmanship should be strong and with as few apertures as possible, and heavy weights should be placed upon the lids after the tobacco is bulked. When the planter is ready to prize, he will find the bundles to come out of the box almost as straight as candles, which very much facilitates the prizing operation. In putting the bundles in the hogshead, they should always be laid on the edge, if they are anywise flat—the longest bundles in the middle and the short ones around the edge, which fit in more neatly. There is very great art in prizing, and the same tobacco will command more or less by several dollars in the hundred, according as it is prized. There are different modes of placing the bundles in the hogshead, but this would be impossible to describe on paper, and could only be acquired by observation.

The few remarks which have been made in these notes, are merely an outline—a sketch of the process of the tobacco culture amongst the best planters in Virginia. We have not the leisure to go more into detail, and many things could only be acquired by observation. Tobacco is a crop of much labor, and the cultivator can only be paid for it by getting the best prices—and to do this, he must take great pains. We consider that no man is paid for his trouble if he does not get $10 per hundred. This remark may be qualified, however, by saying that those who live near market would perhaps find it to their interest to adopt a more summary course, by taking it to market in a loose state as soon as it can be stripped out. In this way, although they may not obtain the highest prices, yet they get it off their hands—have the use of their money several months sooner—avoid a great deal of waste, and have more leisure to raise manure and improve their farms.

DISEASES OF HOGS.

From the Agriculturist.

As we rank the hog among the most useful and indispensable of our domestic animals, it is but right that we should investigate their diseases and endeavor to apply some remedies. The number lost in this neighborhood last fall was 4 to 500—this is a matter of some interest with a community that have to raise or buy as much pork as we do, for we consume more to the population than any other people—from the fact that the negro population consume nothing else. The most of our farmers attribute the death of their swine to the stock pea. Can any of your numerous readers tell if peas are injurious to hogs

under any circumstances? and if so, what is an antidote? We are in the habit of growing peas with our corn for the purpose of sustaining our young hogs through the fall and winter, and for the further purpose of enriching the soil. The pea is the most certain and prompt restorer of worn soils we have ever tried. If we have to abandon the pea for its bad effects on hogs, we shall be in a bad condition. The hogs that died here this fall had none of the common diseases of swine—they continued to decline—refused to eat, and died without any uncommon symptoms—none ever recovered that were noticed to decline. They were taken off the peas and fed liberally with corn smeared with tar and sulphur, and the disease was arrested. The season had been very wet and something may have grown out of that fact. The three common diseases of swine are, breaking down in the loins, staggers and thumps. I will give my experience on these diseases. I am inclined to think that the disease of the loins is of two grades or kinds; 1st, where the hog is without motion from the loin back. 2d, where they have motion in the hind legs but cannot rise. Whether the affection proceeds from the same cause, and one a mild and the other an aggravated case, I cannot tell; but it is true, that in cases where there is no motion in the hind legs they always die. But in the second case, most all may be raised, by plucking out the hair on the loins and making an incision near the spine, and rub it well with tar and feed on slops, with a good portion of red pepper—I have raised and fattened many. If I do not mistake the Kentucky Farmer, or Southern Cultivator, asserts that this disease of the spine is incurable. The staggers is a discase of the head I think—the tendency is to turn round and round till the hog falls on a particular side, and it is difficult to make them lay on the other side. Bleed by cutting the tail and ears—they will generally recover, but will never distinguish the direction of sound so well afterwards, if they have been badly afflicted.

Thumps.—I have never noticed this disease in hogs of much size. It generally attacks shoats that have been badly raised, and generally proves fatal. Cotton seed, straw and dust, I think, create this disease—though I had a shoat that was fat, had never seen cotton seed and had slept in the woods, where there was no dust, that died with this disease last fall. G. L. COCKRILL.

ESSAY ON CALCAREOUS EARTH, AND REMARKS ON QUICK-LIME AS AN INDIRECT MANURE.*

By William B. Smith, M. D.

Delivered before the Cumberland Agricultural Society, Nov. 13th, 1840; and communicated for the Farmers' Register, by order of the society.

Many modern philosophers are inclined to the belief, that all the calcareous earth on this globe is of animal origin. But such an opinion cannot be supported, for this plain reason: that if lime is a primitive elementary substance, it must have existed before animals could have been furnished with it. Lime in all probability is coeval with this earth, and has undergone solution, precipitation and crystalization; and it has also entered largely into the structure and composition of the animal and vegetable kingdoms.

Chaptal says, "the formation of lime-stone appears to us to be for the most part, owing to the wearing down of shells. The identity of the constituent principles of shells and calcareous stones, and the presence of these same shells, more or less altered, in the lime-stone mountains, authorize us to conclude that a great part at least of the calcareous mass of our globe owes its origin to this cause only. "Again" he says, "it may easily be conceived that these shells, when carried along by currents of water, must strike together, and wear their respective surfaces; and that their pulverulent remains, after being long carried about and suspended by the waters, must at last subside, and form heaps or banks of shells, more or less altered according to circumstances."

Lime changes vegetable blues to green, and combines with all the acids; it also combines with sulphur, sulphuretted hydrogen and phosphorus, and is very abundant in the mineral kingdom, forming the basis of animal bones and shells.

The earthy part of animals is chiefly, if not altogether, calcareous; in most cases it is united with phosphoric acid, but frequently with the carbonic.

The calcareous spars, lime-stone, stalactites, marble, alabaster, chalk and marl, consist chiefly of lime. This earth is pretty generally diffused, more or less, over the whole surface of the globe; but we will direct our attention principally to quick or caustic lime, most commonly found in strata combined with the carbonic acid; and is obtained by exposing the carbonate of lime to a high degree of heat, which drives off the carbonic acid in a state of gas. In this condition it is brought to market, to be employed in medicine, the arts and husbandry.

To obtain lime in the greatest degree of purity, pounded chalk is boiled in pure water, and dissolved in acetous acid (vinegar) and precipitated with volatile alkali; this precipitate, when well washed, is pure lime, soluble in six hundred times its weight of water. It has a penetrating, burning, acrid taste, unites readily with water, falls into powder, increases in bulk, evolving at the same time heat and phosphoric light. Acids rea-

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* Lest our silence should be misconstrued into assent, it is proper for us to say generally, that we do not concur with Dr. Smith in some of the views presented in his essay, in regard to the action of quick-lime, and compounds of lime in soils. We do not usually feel called upon thus to express dissent from the opinions of correspondents, and there is still the less need of doing so in regard to papers which are parts of the transactions of societies, and ordered as such to be published. Still, as the subject of calcareous soils and manures has heretofore engaged so much of our attention, it seems proper to make, by this note, an exception to a general rule—and we trust that it will not be deemed either indecorous or disrespectful.—ED. F. R.

dily disso've lime, and there are probably as many calcareous salts as there are known acids.

Lime contracts the living fibre, and therefore possesses astringent powers; it is also a powerful antacid and stands highly recommended in chronic diseases of the skin, cancer and ill-digested sores: it is used also in diseases depending on laxity and debility of the solids, as in diarrhœa, diabetes, scrofula and scurvy. This earth neutralizes noxious air. Calcareous countries are for the most part free from infectious diseases; while sandy and clayey soils of the same climate are subject to fevers. Where there is no calcareous earth, the inhabitants should wash their rooms annually with lime; strew it before their doors, lime the trunks of their fruit and ornamental trees, and it will have the double effect of preserving health and destroying insects.

Lime after having been deprived of fixed air unites with it again with great eagerness. This process goes on so rapidly, that quick-lime, by being exposed to the open air, will grow mild again by the absorption of carbonic acid.

"Lime powerfully attracts the carbonic acid, of which it was deprived by heat, and that acid is universally diffused through the atmosphere (though in a very small proportion, and is produced by every decomposing putrescent substance. Consequently caustic lime, on land, is continually absorbing and combining with this acid; and, with more or less rapidity, according to the manner of its application, is returning to its former state of mild calcareous earth. If spread as a top dressing on grass lands—or on ploughed land, and superficially mixed with the soil by harrowing—or used in composts with fermenting vegetable matter—the lime is probably completely carbonated before its causticity can act on the soil. In no case can lime, applied properly as manure, long remain caustic in the soil. Thus most applications of lime are simply applications of calcareous earth, but acting with greater power at first, in proportion to its quantity, because more finely divided, and more equally distributed." See "Calcareous Manures" chapter viii. page 33.

From the avidity with which these two bodies unite in ordinary circumstances, it has been imagined that quick-lime acted upon land, or manures, by hastening putrefaction; that is by disorganizing animal and vegetable manures, and depriving them of their fixed air. Lime, in the absence of carbonic acid, unites with various other acids of the soil, tempering their stimulant and corroding properties. This sometimes happens, but the carbonic acid of the atmosphere unites with lime as soon as it is given to the soil. In order then to derive the greatest benefit from this mineral as a manure, it should be immediately covered with the plough, to exclude atmospheric air; it will then more readily unite with the carbonic acid of the earth, and hasten the decomposition of animal and vegetable matter.

The wonderful effects produced on land by gypsum, or plaster of Paris, seem to astonish the farmers, and yet these effects are produced by the action of lime alone and not the combined action of sulphuric acid and lime which forms gypsum: unless the carbonate of lime and sulphate of lime undergo decomposition when given to the soil, they are inert, and can exert no influence on vegetable or animal matters.

These salts may undergo slow decomposition when applied in fine powder; but if we wish to renovate our lands speedily we must use quick-lime.

The plaster of Paris will be decomposed by the following salts, when given to our lands:

1st. By the nitrate of potash (saltpetre.)
2d. By the nitrate of soda.
3d. By the muriate of soda (table salt.)
4th. By the carbonate of potash (vegetable alkali.)
5th. By the carbonate of soda (mineral alkali.)

The sulphate of lime, is more apt to undergo decomposition from the various agents in the earth and atmosphere, than the carbonate of lime; for none of these salts, that is, the nitrate of soda, muriate of soda, carbonate of potash, or carbonate of soda, will readily decompose the carbonate of lime. When gypsum and the nitrate of potash are united, a double elective attraction takes place; the potash of the nitre attracts the sulphuric acid of the plaster of Paris and forms sulphate of potash, and the disengaged nitric acid unites with the lime and forms the nitrate of lime. When plaster of Paris is applied to soils impregnated with muriate of soda, (table salt) a double elective attraction also takes place. The sulphuric acid unites with soda, and forms Glauber's salt, and the muriatic acid unites with lime and forms the muriate of lime. This double decomposition will not hasten the growth of plants, for the sulphate of soda and muriate of lime cannot decompose animal and vegetable manures. Gypsum then should not be given to lands on the seaboard, or to soils impregnated with muriate of soda, or table salt, because the lime is lost by its union with muriatic acid.

But why this chemical process? Let us drive off the sulphuric and carbonic acids by heat, and give the pure lime in its caustic state to our lands. It will then immediately commence action, by condensing the principles of the atmosphere, attract its moisture, and at the same time seize upon every blade of grass, every leaf and indeed all kinds of vegetable and animal matters and hasten their decomposition by robbing them of carbonic acid.

I find in the "Medical Repository," the following review, vol. i. p. 346. "Agricultural Inquiries on Plaster of Paris. Also, Facts and observations, on that substance as a manure, &c. By Richard Peters." With great pleasure we announce this small publication, which is intended, as the author modestly says, "to invite as well as to give information," and which is collected chiefly from the practice of farmers in Pennsylvania. The subject of manures appears, as yet, to be in need of much further elucidation than it has hitherto received; and on scarcely any article of the whole tribe of fertilizing substances is a rational theory more wanted than in the case of gypsum. Mr. Peters has proceeded in the proper way to come at a right understanding of this subject, by laboriously and patiently collecting, not only the facts which fell under his own eye, but those which occurred to the intelligent farmers of the country around him.

"The mode adopted to collect information was by a circular letter, containing about a dozen queries. To these queries answers have been returned by Messrs. West, Frazer, Price, Hand, Curwen, Sellers, Duffield, Wharton, Roberts,

Heckewelder, and by Mr. Peters himself. So that the materials collected are to be considered as the result of the agricultural experience of these respectable cultivators. They all agree in the vast utility of gypsum as a manure in most parts of Pennsylvania, where it has been tried. It seems to be agreed on, that after ten or eleven years' use, the gentlemen still entertain their good opinion of it: that it remarkably recovers exhausted and impoverished land; that one bushel and a half, or two bushels, will be sufficient, if yearly repeated, for clover; that it will answer well in a sandy loam, upon a limestone bottom; that though it is serviceable when strewed in powder, on gorwing plants, it succeeds best in repetition, after cultivating and dressing slightly with stable manure, or with ploughing in green manures. As to the supposed sterility occasioned by gypsum, Mr. Peters observes, that his own experience teaches him it does not exhaust more than other manures do, particularly dung, and that, to produce its full effect, it must have something to feed on, as some farmers express it; that is, as we suppose, to be valuable and active, gypsum must meet with something in the soil to decompound it; and where this is wanting, the plaster of Paris does no good. When strewed on the surface, it most remarkably benefits white and red clover, and most grasses; though it did not appear to do any good to winter grain. It is good in all leguminous plants, buck-wheat, flax, hemp, rape, and oily seeded plants; most products of the kitchen garden, and for fruit trees; as well as for oats and barley, when sprinkled at sowing time on the wetted seeds. Mr. Peters has sowed gypsum at all times of the year, and has found it answer well, if strewed over the land at any time from the beginning of February to the middle of April; and he directs it to be sowed in misty weather, to avoid the loss of having it blown away by the winds if sowed in a dry time. Some do not sow it until vegetation begins, though our author thinks it will have an effect if sowed at any season. As to the quantity of produce by the acre, Mr. Peters affirms he gets as much from gypsum as from any other manure; that the hay is better than that produced by dung; the cattle waste less of it; and, if the grass is used for pasture, the creatures are much more fond of the plastered than of the *dunged* produce. He is satisfied with a ton and a half the acre at a cutting; he mows twice, and has a third growth for grazing afterwards. Its durability is such that, though sometimes it will be exhausted in one year, yet the effect of one dressing, of three or four bushels to the acre, has been felt for five or six years, gradually decreasing in its powers, and seems to be capable of prolonging the efficacy of dung; and has been known to do good, when sowed repeatedly, and in small quantities, for a continuance of twenty years or more."

I regret that this valuable little work on gypsum cannot be obtained in Virginia; but from the "review," brought before the reader, Mr. Peters, is of the opinion, that "gypsum must meet with something in the soil to decompound it; and where this is wanting the plaster of Paris does no good." So says his reviewer; or in other words, the plaster of Paris, before it can benefit the soil, must undergo decomposition; and the lime being set at liberty immediately acts on vegetable and animal manures; causing them to yield back their principles to the earth and atmosphere as food for plants. In this decomposition the lime of the plaster of Paris, unites with the carbonic acid of the earth and air, forming carbonate of lime, and the sulphuric acid unites with potash or soda forming vitriolated tartar, or Glauber's salt. These two alkalies, potash and soda, have the strongest affinity for sulphuric acid; and gypsum when given to the soil, will not be decomposed unless it contains potash and soda, or their combinations with carbonic, muriatic and nitric acids, which form the carbonate of potash and soda, the nitrate of potash and soda, and the muriate of soda. These five salts, as I have before stated, will decompose gypsum, as well as their bases.

Farmers are often disappointed in the use of gypsum, and it is owing to the circumstance that there is nothing in the soil to decompound it. We have reason to believe that this salt, when used as manure, lies dormant in the earth for many years. Dr. Meriwether informed me that in one instance ten years elapsed, after using gypsum, before the soil received any benefit from it. Gen. T. B. Randolph, used much plaster on his Green Creek farm 12 or 15 years ago and it has not, until within the last three or four years, fertilized the soil.

Both salts and alkalies decompose gypsum or sulphate of lime; but the carbonate of lime seldom meets with agents in the soil to reduce it to its principles; hence it is that farmers fail in the use of lime united with carbonic acid.

Many theories have been given to the world on the subject of lime as a fertilizing agent in farming; but I cannot believe lime acts as a manure, nor has it in my opinion any nutritive properties. By uniting with carbonic acid it sets free a number of gases and other principles in the earth and atmosphere, and they stand ready to be taken up by the inhaling vessels, and tender roots of plants. So that lime hastens the decomposition of vegetable and animal manures, and is nothing more than an exciting agent, disengaging nutritive elements; and they become food for plants to be elaborated into sap, mucilage, oil, &c. From what has been said, it would seem that lime acts indirectly as a manure, by performing the great work of disorganization, and may with propriety be considered a stimulant.

Quick-lime unites first with carbonic acid, if within its sphere of attraction, and this union continues until the carbonate of lime is completely formed; it then becomes inert, and the soil will require another dose of lime in order to carry on vegetable and animal decomposition. If the subsoil of eastern Virginia was composed of the carbonate of lime, it could not exert any influence on its soil; because in that state it would be inactive, and must undergo decomposition and give up its lime before it can benefit the soil. In all calcareous countries the soil becomes exhausted by the continued action of carbonic acid, and cannot be reclaimed without the application of quick-lime. Hence we find in the richest limestone regions the farmers are busily employed in burning lime-stone as a manure for their lands. I should infer from this circumstance, that lime loses its effect, and is not a permament manure.

Mr. Ruffin assures us, however, that it is permanent, and I beg leave here to quote his own language from his invaluable 'Essay on Calca-

reous Manures,' chap. xvii, p. 58-9. "Lord Kames mentions a fact of the continued beneficial effect of an application of calcareous manure which was known to be 120 years old. Every author who has treated of manures of this nature attests their long duration: but when they say that they will last 20 years, or even 120 years, it amounts to the admission that at some future time the effects of these manures will be lost. This I deny —and, from the nature and action of calcareous earth, claim for its effects a duration that will have no end." With all due deference and respect for an opinion coming from such high authority, I beg leave to differ. Lime is not lost when given to the soil, but we have reason to believe its general properties are changed by uniting with carbonic acid. Now there is a wide difference between the carbonate of lime and quick-lime, when used as manure—the former is a mild inactive neutral salt; the latter a caustic, disorganizing earth, that feeds plants by setting at liberty the components of the atmosphere, vegetable and animal matters, putrid sewers, dunghills and grave-yards, until the fell destroyer becomes satiated and neutralized with carbonic acid; and, being unable to pursue the work of destruction any longer, remains quiescent. I doubt whether the carbonate of lime, when given to the soil in extreme division, undergoes decomposition. For, according to Mr. Lavoisier's table of the combinations of carbonic acid with the salifiable bases in the order of affinity, lime stands first, with the exception of barytes, an earth seldom found in Virginia. Carbonic acid, then, having the strongest affinity for lime, will unite with it, and the longer it is exposed to atmospheric air the harder it becomes. Marine shells remain on the surface of the earth for ages, in a state of preservation, exposed to heat and cold, moisture and dryness, resisting at the same time the action of the acids. Lime used in building becomes so hard from atmospheric exposure and age, that it is with difficulty broken; and I suspect the lime mortar in the old church steeple in Jamestown has become by age as hard as lime-stone. Lime water exposed twenty-four hours to the action of air, forms a carbonated crust, and, if it remains any length of time, all the lime dissolved in the water will unite with carbonic acid, and form a neutral salt. May we not conclude, then, that quick-lime, when given to our lands as manure, ultimately becomes a salt by the laws of affinity? Am I right, then, or wrong, when I say our lands must be periodically limed? Lime alone must be used as manure, and not its combinations with the carbonic, sulphuric and other acids. Those who purchase lime with a view of improving the soil, should get it in tight casks, and plough it in as soon as possible; for a few days' exposure to the action of the air destroys its caustic properties in a great degree, and deprives it of the power of decomposing animal and vegetable manures.

Dr. Meriwether, a distinguished farmer, was the first, I believe, who used lime as a manure in Amelia; and he regularly limed his little farm of 250 acres once in four years, and was amply paid for the lime and labor.

In eastern Virginia, we have the sand, and the clay, and the labor, but we are without lime; how are we to get it? My answer to the question is, that we must buy, if it cost 75 cts. per bushel, for without this useful mineral our lands can never be reclaimed. We may go on slowly to improve our farms, with vegetable and animal manures, rest and native grasses, but all our worn lands cannot be reclaimed without lime. Now the question is, shall we continue the present system of agriculture, or shall we lime our lands?

Two ounces of quick-lime will cover one yard square; and as there are 4,900 square yards in an acre of ground, two ounces to the square yard will amount to 612½ lbs.; and as lime can be brought to us at 75 cts. per hundred pounds, 612½ lbs. will cost $4.59 the acre. I am not prepared to say this quantity of lime will reclaim our worn lands, but think it will increase our grain crops, and enable us to purchase again the same amount of lime, which will reclaim, if not enrich our worn lands; at the expense of a quarter of a pound of lime to the square yard, or 1225 lbs. to the acre, which will cost $9.18, if lime can be furnished at 75 cts. per hundred pounds. Is it then to the interest of land holders in eastern Virginia, to improve their farms, by liming at from $4.59, to $9.18 per acre? It appears to be the only alternative, and the farmers of eastern Virginia, ought to give half a pound of lime, to the square yard, or 2450 lbs. to the acre, which amount to $18.36, in preference to emigration. And why? Because their farms would be rich, crops abundant, and ample returns made for every dollar given to the soil.

The population of Cumberland is less in 1840 than it was in 1830, owing I suppose to the deterioration of our lands, and the only way we can stay emigration, and save eastern Virginia, is to lime the soil and plough it deep. But while I am inculcating this doctrine, I must be candid enough to say, that I have never limed my farm, and am hiring out laborers annually, because the farm has no lime to support them.

If rail-roads, contemplated some years ago, from Richmond to Farmville, Lynchburg and Danville, should ever be completed, it would then be within the opportunity of every landholder in this section of Virginia, to purchase lime at a very reduced price. But as this great work will not be carried out in many years, a rail-road from Planters' town, the head of navigation on the Appomattox, to some point on James River, above Warminster, a distance of 25 miles, would furnish a large portion of eastern Virginia with lime.

A section of the state then most remote from calcareous deposites, would be supplied with lime at 20 or 25 cents per bushel. Such a road would be valuable not only on account of lime, but various other minerals would be transported across the country, and cut off the long route down the James River and up her tributary streams.

But it may be said, that there are many landholders who could not incur the expense of lime at any price; this is true, unless they would sell a part of their worn lands, to improve the balance. If they are not disposed to make such a sacrifice, the only alternative will be, to improve a part of their worn farms, with manures collected from the stables, farm yards, cowpens, wood yards, leaves from the forest, ashes and so on. That part of the farm, which cannot be manured, should be inclosed, and every fall turn in the coat of vegeta-

tion with the plough. Such a system of husbandry will, in time, reclaim all our worn lands. The cheapest plan, however, will be to use lime, if we are under the necessity of selling property to pay for it. I beg leave here to give a word of truth for farmers, from the 'Raleigh Register.' In one of the old Roman writers there is a story told of one Paridus, "who had two daughters and a vineyard. When the oldest was married, he gave her a third part of the vineyard; notwithstanding which, he obtained from two-thirds the same crop as from the whole. When the other was married, he portioned her with half of what remained, and still the produce of his farm was undiminished." This story is an excellent moral, and should be improved. It illustrates the advantage of cultivating a small quantity of land well, rather than a greater quantity badly. It is a fact which strikes the most superficial observer, that farmers generally cultivate too much land. The evils of doing so are obvious: great expense of labor, and imperfect cultivation, by which land is impoverished, and comparatively small profits realized. It is a common idea among farmers, that the best investment of property, because the safest, is in land. When, therefore, they have accumulated a sum of money, they will, if possible, enlarge their farms. But, in most instances, it would be as much for their interest to bury their surplus money as to multiply their acres beyond their means of thorough cultivation. Nothing is more true than the remark of a celebrated writer, that "farmers are yet to learn the immense productive power of a perfectly cultivated acre." Lime, when applied to sandy soils, without vegetable matter, will have nothing to act upon but sand, which forms mortar, such as we use in building.

Lime given to clay soils, without manure, forms marl, and in either case there is no improvement of the soil. Lime given to poor soils, having a thin coat of vegetation, exerts but a feeble influence, because there will not be nutritious gases enough after vegetable decomposition to produce luxuriant vegetation. Thin lands, must be manured as well as limed before they can be reclaimed. Lands of this character may, in time, become rich by liming without manure; if we are careful not to give more lime than such lands can bear; a small quantity on poor soils will be sufficient to decompose its vegetable matter. But if manures be used with lime on poor soils, they are speedily reclaimed.*

Worn lands in eastern Virginia, such as we cultivate in grain, yielding three bushels to the acre, will be wonderfully improved by the application of lime. Two barrels, or 600 pounds of lime on such lands, will more than double the crop the first year. Rich lands require no lime, it is our worn and exhausted fields we wish reclaimed; and in order to do this lime must be used as an exciting agent, and vegetation of all kinds will be pushed forward; the native grasses will in a short time become more luxuriant, and ultimately bring back worn lands to their native fertility.

Our lands should be limed, as soon as the coat of vegetation is killed by the frost; or as early in the fall as convenient: immediately after liming the soil, turn it over with the plough, and the vegetable matter in the spring will have undergone partial decomposition, and be in a proper state to yield its principles to the tender roots of plants, as soon as the warmth of spring pushes them forward. Where vegetable and animal manures are very fine and well rotted, lime may be used with advantage in the spring; but coarse unrotted vegetable matters require lime in the fall, in order to carry on the work of disorganization through the winter months; and the various nutritive gases will be evolved for the spring crops. Decomposition will then go on through the spring and summer months and give the growing plants a due portion of aliment: for their evolution and growth depends on the decomposition of vegetable and animal manures. Some farmers lime in the hill, or roll small grain in lime before seeding; and it is astonishing to see with what rapidity vegetation is pushed forward for a few weeks. But as soon as the roots extend beyond the hill in a hungry state, it is truly mortifying to see how rapidly the plant declines; hence the necessity of spreading lime or manures over the surface of the earth, that the young roots may be continually supplied with food.

Observation and experience both teach us that worn lands may be made rich by liming and ploughing. Lands we do not intend for immediate use, should be inclosed, limed and ploughed, and the succeeding crops of vegetation, being more luxuriant, will increase their fertility: but if we wish to enrich the soil for immediate use, I would suggest the following plan of treatment. Give to an acre of land, yielding five bushels of wheat, two barrels, or 600 lbs. quick-lime in the fall, and turn it in with the plough; in the spring, seed it in oats or buck-wheat and fallow the crop at harvest. The second crop, will be ready for the plough in October, to be fallowed for wheat and clover. Under favorable circumstances the crop of wheat, the following year, will yield 12 bushels, and the land will be made rich when the clover crop is turned in eighteen months after taking the crop of wheat; or in three years after the application of lime.

Expense per acre.

612½ lbs. lime, 75 cents per cwt. -	$4 50
1 bushel oats - - - - - -	40
1 gallon clover seed - - - -	1 00
	$5 99

Credit.

By 7 bushels wheat, from increased fertility of soil - - - - - -	$7 00

So that the first crop of wheat, overpays the expense of lime and grain given to the land;—this is not all, the soil is enriched and will produce from the clover fallow 15 or 20 bushels. This plan of treatment should follow hoe crops, with a little variation. If a hoe crop be taken from a field in 1840, the land should be seeded in wheat and clover in the fall, and in the spring of 1841, give one barrel of caustic lime per acre, to the young clover; the wheat crop will be removed in the summer, and in the spring of 1842, lime the clover again with the same quantity, and fallow it in the fall.

Lands treated in this way will bear a hoe crop

* Some farmers lime heavily; but six bushels on thin land will answer a better purpose than six hundred; unless there was in the soil, vegetable matter enough to neutralize it.

once in 3 or 4 years. The old system of cultivation with the hoe is improper; and I have no hesitation in saying that the hoe crops of eastern Virginia have exhausted our best lands. Where is the fine soil of eastern Virginia now? Much of it has been carried down hills, branches, creeks and rivers by the hoe crops, leaving nothing behind but galls, gullies, and the sub-soil. It is time they were given up except in a limited way; and let us make more small grain and grass in order to secure the soil we have remaining. Such a system of agriculture, assisted by lime, deep ploughing, and hill-side ditches, will renovate the worn lands of eastern Virginia, in four years. Then let us go to work in good faith, and use lime alone on our lands, free from the carbonic and sulphuric acids, and it will perform the work of dissolution in the earth, until the great destroyer becomes neutralized.

ON THE MANAGEMENT OF BEES.

By Thomas Ward Jeston, Esq., Henley-on-Thames.

From the Journal of the Royal Agricultural Society.

I have found by experience my plan for the management of bees, and mode of taking their superfluous honey, without destroying the parent hive, fully to succeed: in a bee-country it will afford the cottager a very ample return for his trouble, and not require so much watching as the old plan—for the older the hive is, the less chance will there be of swarming, but a greater chance of a large deposite of honey. I have kept bees more than twenty years; have tried Huish's, Nutt's, and various other plans, but the one suggested by this industrious insect itself I have found to be the most simple, cheap, and successful, and will not cost the cottager more than sixpence to adopt, in addition to his old hives.

Some years ago I placed an empty butter-tub under the board on which the hive rested; the sun cracked the board, and the bees enlarging the opening, took possession of the tub, and, after filling their own hive, deposited 26 lbs. of honey and comb in the tub below. This I took possession of for my own use, leaving their hive full of honey for their winter's consumption. By improving on this simple plan, I have carried off the prizes for honey at the Henley Horticultural Society for the last four years. A board, half an inch in thickness, 18 inches in width, and perforated with two holes, each an inch in diameter, is placed between the hive and the butter-tub. The tub should be placed under the hive as early as March; the bees having a great dislike to any disturbance of their arrangement. I last year took upwards of 40 lbs. of honey in this way, although the season was so bad, and an ample supply of food was left for the bees to subsist on during the winter. This plan will prove a good substitute for the "rear" used to enlarge the common hive; with this advantage, that a supply of honey can be obtained from the strong swarms as well as the old hives.

I have never found occasion to feed the bees from which honey had been taken in the mode described; but previously to the adoption, I was in the habit of feeding them with coarse sugar boiled in beer, and a little old wax-comb, to the consistence of a syrup. As an experiment I once fed some bees with treacle, made from grating 112 lbs. of beet-root, pressing from it one gallon of juice, and boiling this with one tea-spoonful of sulphuric acid (commonly called oil of vitriol) and three tea-spoonfuls of common chalk, or whiting in powder, which will clarify it and throw off all impurities, leaving, on evaporation, a clear syrup fit for feeding bees.

There is little or no gorse or heath near Henley, and the character of the country is arable. The market-price of virgin honey (such as is obtained on my plan) is in the town from 1s. 6d. to 1s. 8d. per pound, and the wax from 1s. 6d. to 2s.

The following are the weights of seven hives, taken in April 1838, from which honey had been taken in the previous autumn, and yet the season of 1838 proved so bad that I obtained no honey that autumn, and two of the hives perished in the following winter:

Hive No.	1.	-	-	-	28 lbs.
"	2.	-	-	-	28 "
"	3.	-	-	-	25 "
"	4.	-	-	-	25 "
"	5.	-	-	-	24 "
"	6.	-	-	-	23 "
"	7.	-	-	-	22 "

This season my five old hives, and Nutt's hive also are in full vigor and operation.

Henley-on-Thames, Oxfordshire, May, 1840.

ON PREPARING NIGHT-SOIL.

From the (London) Farmer's Magazine.

Sir—I observed a few days ago in one of your late periodicals, an inquiry, by a correspondent, for the best method of preparing night-soil for manure. He said "he had mixed it with lime, and a very strong smell of ammonia was evolved, whereby he feared the efficacy of the manure might be impaired. These conclusions are perfectly correct; its efficacy as organic manure would be destroyed by the use of lime.

When an organic body containing nitrogen undergoes putrefaction, and moisture present, the nitrogen unites with the hydrogen of the water and forms ammonia; the oxygen, the other element of water, unites with the carbon of the putrifying body, and forms carbonic acid; both these transformations, in their nascent state, combine and form carbonate of ammonia, a volatile salt, which is always evaporating with water, as long as the decomposition continues. Such *invariably* takes place in nitrogenous bodies.

When lime is added to a body holding carbonate of ammonia in solution, as in night-soil, the ammoniacal salt is decomposed; the lime robs it of its carbonic acid, and caustic ammonia, a still more volatile compound, flies off in gas: thus we have got rid of all the nitrogen the organic compound contained.

Organic manure, without nitrogen, is of very little value. It pervades every part of the vegetable structure, and no plant will attain maturity, even in the richest mould, without its presence. The relative value of manure may be known by

the relative quantity of nitrogen it contains. There does not appear to be any manure so rich in nitrogen as human excrement (except bone manure, which contains upwards of 30 per cent. of gelatine in its interstices); so much so, that according to the analyses of Macaire and Marcet 100 parts of human urine are equal to 1300 parts of fresh dung of the horse, 600 parts of the cow, and 450 parts of the urine of the horse. Hence it is evident that it would be of much importance if none of the human excrements were lost, especially when we consider that with every pound of urine a pound of wheat might be produced. Now I would suggest to your correspondent the best and most economical method I know of preserving unimpaired the most valuable element in night-soil, which is as follows: To every 100 lbs. of night soil add 7 lbs. of sulphate of lime (gypsum) in powder, a double decomposition will ensue, and the result will be, instead of sulphate of lime and carbonate of ammonia, carbonate of lime and sulphate of ammonia; the latter a soluble salt which cannot be volatilized. It might now be mixed with other compost, or dried any way thought proper, and applied to the roots of the vegetable, to be again transformed into bread, butter, cheese, &c.

Chloride of calcium, sulphuric or muriatic acid, substances of low price, would completely neutralize the urine, converting its ammonia into salts which possess no volatility.

I would also suggest that if the floors of stables be strewed from time to time with a little sulphate of lime, they will lose all their offensive smell, and none of the ammonia which forms can be lost, but retained in a condition serviceable as manure. In close stables the horses' health would be better preserved, and they would not be so liable to get blind as now. 1¾ lbs. of sulphate of lime will fix as much ammonia as is produced by 100 lbs. of horse's urine.

I am, sir, your obedient servant,

Wanebridge, Nov. 14. GREGORY BRABYN.

ON THE WHITE OR BELGIAN CARROT.

By John C. Morton, Esq.

From the Journal of the Royal Agricultural Society.

Chester Hill, Nov. 18, 1840.

Sir:—I am desired by my father to send you the particulars of the crop of white or Belgian carrots on Lord Ducie's farm at Whitfield. The extent of the piece is 1 acre 36 perches, from which 64 cartloads of roots were taken. The average weight of a cartload was found to be 10 cwt. This gives 32 tons as the total weight of the crop, which is at the rate of 26 tons 3 cwt. per acre. The soil is a deep, sandy loam, belonging to the new red sandstone formation.

This is a heavier crop than any other on the farm. The seed was sown in the second week in April, on land which had been ploughed ten inches deep. It was sown on the flat, in rows eighteen inches apart, by the common Suffolk drill. The seed had been mingled with damp sand for several days previous, as well to sprout it partially as to render it capable of being drilled, as carrot seed clings so much together. They are singled out when a fortnight old at intervals of six inches in the row, and two horse-hoeings, with a hand-hoeing whenever the weeds made their appearance, was all the cultivation they received.

The result is a crop not only much more valuable per ton than any other green crop we have, but also heavier per acre, and raised at an expense less by at least one half than that attending the cultivation of turnip.

The crop on the land the year before was Swedes, which were carried off the land and sold. No dung of any kind was put to the carrots.

I am, sir, your most obedient servant,

JOHN C. MORTON.

Ph. Pusey, Esq., M. P.

Note by Mr. Pusey.

This carrot, though it has been long grown as a field-root in Flanders, has been but very lately introduced into England: it is, however, much liked by those who have tried it in my own neighborhood. A farmer, Mr. W. B. Harris, who has grown it for two years on a good free loam, gives me the following account of it:—"On taking up my carrots and weighing them, I find they fall short of the quantity I grew last year. Instead of the white carrots weighing nearly 32 tons per acre, they will only weigh 20 tons this year; and instead of the red ones weighing about 16 tons, they only weigh twelve tons this year. I have generally found the difference between the red and white carrots to be as follows (in all cases where I have weighed them, and in all cases of inquiry):—The white generally exceed the red ones in weight from 8 to 9 tons per acre, when you take the average of the field as I have done now. I attribute the failure in my crop this year to two or three things. In the first place the land was not subsoiled; in the second, they were planted late, and the weather too dry; and in the third place, they were hoed too thin—they were hoed the last time with a bean-hoe." Even the diminished crop of Mr. Harris, however, is very considerable, as it is equal in weight to an excellent crop of Swedes, and is twice as valuable. On some lighter land 16 tons of the white carrot were grown last year, where the red field-carrot gave a very poor crop. I ought to add that I have not succeeded in raising more than 8 or 9 tons myself; but this new root has in its favour the high practical authority of the Yoxford Farming Club, who "recommend strongly the cultivation of the long white carrot, as it produces a heavy crop of good quality, and adapted to strong as well as mixed soil lands, will keep well, and is excellent food for cart horses." It has been stated to me that there are two varieties, and that the best of the two is that which makes a large portion of its root above ground. Sir C. Burrell has grown it in Sussex, and has found it very productive. Colonel Le Couteur informs me "that in Jersey the prize crop of parsnips this year afforded 318 lbs. to the perch, or 23 tons to the acre; while the white carrot, a prize crop also, which he had cultivated experimentally, gave him 524 lbs. to the perch, or nearly 38 tons to the acre—an enormous crop," he adds, "which, if equally valuable for butter as the parsnip, will of course supersede it, as his parsnip crop in the same field, cultivated alike, only produced 16½ tons, which, nevertheless, was a very fair crop."

BOUNTY FOR SILK.

The legislature of New York have passed an act allowing a bounty of 15 cents per pound for all cocoons produced in the state, and 50 cents per pound for the reeled silk. The act is to continue in operation until June 1, 1846.

WHITE CARROT.

From the Sussex Express.

We beg to draw the particular attention of our readers to an excellent letter from Sir C. M. Burrell, Bart., on the subject of growing the white carrot, the value of which we can fully confirm, having this year (although the season has been very unfavorable) obtained highly satisfactory results respecting it. We were induced to experimentalize on this root at the recommendation of the Hon. Baronet, given last year. Next year we shall offer a premium for samples of white carrots.

Knepp Castle, Nov. 3.

Sir,—Perceiving, on perusal of your last *Express*, your notice respecting the premiums offered for specimens of turnips and mangel-wurzel, with accompanying statements of their culture, and appreciating the probable beneficial results of such an exhibition at Lewes, I trouble you with the following practical statement in support of my last year's published opinion on the preference of the culture of the white cattle carrot over that of the parsnip for agricultural purposes, and which was made in consequence of a letter from a correspondent in the *Lewes Advertiser*, advocating the growth of the parsnip, in which 500 bushels per acre was stated as the produce. Conceiving that from my then crop of white carrots, grown on a *very indifferent* field, the yield of which was 100 bushels per acre, without the green tops, that their culture would be more advantageous on stiff soils than that of the *parsnip with a return of about a moiety of the produce only*, I laid a comparative statement of my crop before the public, that agriculturists of intelligence and spirit might try the results by sowing both sorts on similar quality of land. But satisfied as I am myself of the preference of the white cattle carrot on my farm over all roots fit for cattle, I again sowed four acres broadcast on land of *better quality* this year, and so far as experience shows in the raising and housing of about half my crop, there will be, as near as we can determine, 1,300 bushels per acre, after separation from the green tops; and considering the depth whence their nourishment is obtained (in one instance no less than 3 feet 5½ inches, and in several others nearly as deep,) I do not view it as a very scourging crop, especially considering the vast increase of nutritious winter fodder, with consequent economy of hay, for both fatting and lean stock, and *especially milch cows*, their cream and butter being as good and free from any ill-flavor as when feeding on the pastures; and likewise looking to the great increase of farm-yard manure resulting from its consumption, to which may be justly added the clean, friable, and finely pulverized state in which the ground is left after the removal of the crop, particularly well adapted for ridging up during winter and sowing with barley and seeds in the ensuing spring. I do not hesitate to bring the results of my experience to your attention and consideration; how far it may be desirable hereafter to introduce the white cattle carrot among those encouragements you offer in the shape of premiums for turnips and mangel-wurzel. For the obtainment of the seed I recommend both Messrs. Wrench and Sons, of King William-street, seed merchants, and Mr. Gibbs, of Half Moon-street, from either of whom good seed may be depended upon. My first inducement to try it was the representation of Mr. Eaton, M. P., whose father, I understood, obtained the seed from Holland; with a result on sowing it, on indifferent land in Cambridgeshire, of 1000 bushels per acre, with which my crop in 1839 tallied very accurately, I led myself to believe (but from the dryness which prevailed after sowing my seed last spring, and the consequence of a fresh growth on rain falling after hoeing in summer) that the carrots would have been of more equal size, and the amount of the produce possibly greater in weight and value. For the cultivation of the white carrot, free-working deep soils, well and deeply drained and *subsoiled*, are to be preferred; and the better heart the ground is in, and the cleaner the tilth, the greater will of course be the chance of a remunerative and beneficial crop. Mine were sown broadcast, 6 lbs. to the acre, costing last spring 1s. per lb.; but whether being sown in drills at proper distances, and ridged up, would improve the crop, I leave to the discriminate judgment of practical and more scientific farmers. I shall only add, that those who at my recommendation have sown the white cattle carrot express their satisfaction at their adoption; and my neighbor, the Rev. William Woodward, of West Grinstead, having sown them on a small breadth of land, has had cause to be satisfied with the result equally with myself. You are welcome to make what use of my observations you think proper, accepting my excuse for sending them hastily, and, I fear, rather incoherently written, my time being too much occupied to make a fair copy. I am, sir, your humble servant,

CHARLES MERRICK BURRELL.

ON COAL-ASHES.

From the Farmer's Magazine.

Coal-ashes have long been known as a valuable article in improving all stiff tenacious soils, in opening the texture, and in correcting the tenacity; and in a pulverized state they form an excellent top-dressing for young grasses. They are very seldom found unmixed with other substances from the dwelling-house—a calx or cinder mostly accompanies, and except near large towns they form an inconsiderable article as a manure. Lime and magnesia are found in coal-ashes; but they are chiefly composed of silicious and aluminous earths, and vary much in their nature and proportions.

They contain much carbonic acid gas, carbon and hydrogen, with some iron; but our knowledge of them is very imperfect. The principal use is

in top-dressing clovers in March and April, at the rate of 50 to 200 bushels per acre, and usually applied in moist weather, when the effects are very great and certain. The calcareous matter they contain imparts the warming and sweetening quality that is found attached to all residual substances from combustion; and accordingly the use of coal-ashes, and of all alkaline and saline matters, is always recommended on all soils that produce sorrels, rushes, and mosses, in order to banish those plants, by depriving the land of the peculiar properties that are necessary for their production. But it may be observed, that such plants cannot exist where farming prevails, and that the action of manures should be restricted by every possible means to the promotion of those plants which the cultivator uses as a crop. In inland situations, where the supply of ashes is limited, an excellent use may be adopted by throwing them into the night-soil reservoirs, where they will absorb the liquid parts, and ultimately form a solid mass, thoroughly impregnated with the urine; and in the neighborhood of towns, where they can be got in quantity, and where the pulverization of the ashes is sufficiently fine, they may be very beneficially used as a top-dressing; or probably equally, if not more beneficially, by being mixed in a compost with good earths, and applied in the spring on grain lands, and harrowed in with the seed. Coal-dust, or the pulverized particles of coal produced during the different operations at the pits, has been found useful in some cases on stiff lands; but, it is evident, that the action in that case would arise wholly from mixing with the soil, and opening the texture as an earthy ingredient; for the substance applied contains none of the elements of vegetation, to be supplied directly by itself, or the power of producing thereby any stimulating and reciprocal action. Ashes, in a fine or riddled state, are useful for mixing with bones, at the rate of 1 to 20, in order to produce heat before sowing; though practice is far from confirming that process as being essentially necessary, which may arise from different temperatures of soil, and air during the applications.

J. D.

MELILOT.

To the Editor of the Farmers' Register.

Dear Sir:—In your January number, some contributor, who signs no name, either real or fictitious, nor mentions the county in which he lives, has made a eulogium upon melilot, which seems to require some notice, lest it should betray young farmers into an experiment which they will repent as surely as they venture to make it. The writer just mentioned states, that about old settlements, "rendered calcareous by ashes, melilot grows with amazing luxuriance;" but that "he could easily turn it under, when necessary, by his large Clute and Reagle ploughs." He says, moreover, that "it affords fine grazing for sheep and cows during winter;" and that "it will not grow in other than calcareous lands." He concludes with hoping "that you will hear from it again;" and I shall now endeavor to fulfil his hope, (if you will permit me,) by a few statements somewhat different from his.

Melilot is an old acquaintance of some forty or fifty years' standing, and many a fruitless effort have I made to extirpate it from every foot of land with which I have had any thing to do; but it has bid me defiance. It will certainly grow with "amazing luxuriance," about "old settlements,"—even to the height often of six or eight feet. But I must be permitted to doubt the possibility of any such growth being easily turned under, by any plough ever yet constructed. It is true that I never saw, nor heard of a Clute and Reagle plough, and therefore will not take upon me to say what one of them *could* or could *not* do. But I have seen and used all the most celebrated ploughs ever introduced into middle Virginia, and can affirm, without fear of contradiction, that even the best of them could not possibly perform such a feat as to turn under melilot growing as thick and as tall as it generally does at maturity—about old settlements. Nay, it will grow elsewhere with equal luxuriance; for I know that a part of the celebrated farm in Gloucester county, called Todsbury, formerly the property of the late Philip Tabb, esq., was so infested with it, that none of *his* ploughs, although uncommonly good, could plough the land at all, until the melilot was burnt off. I must conclude, therefore, that when your correspondent speaks of easily turning it under with his Clute and Reagle plough, he means that he can do it before this plant reaches half its ordinary growth in good land.

His next assertion is, that "it affords fine grazing for sheep and cows during winter." Now, if it remains green during that season in *his* climate, I can only say, that in *ours*, which is about 38°, it continues as dead as a door nail for the whole of that period, and until late in the spring. I can moreover assert, that if *his* sheep and cows are fond of it in any season, *ours*, so far as I know and believe, will not touch it at any time. It has a strong, and very offensive smell, such as I should suppose would stink in the nostrils of quadrupeds quite as much as it does in our own. "*De gustibus nil disputandum*"—there is no disputing about tastes in men; and therefore it seems equally reasonable that there should be none in brute beasts; consequently I have not a word to object to the fancies of his stock *quoad* melilot. Much and long may they chew the cud upon such a dainty, if their owner imagines that they enjoy it. He farther says, that "it will not grow in other than calcareous lands." But if you are right—as I believe you are—we have precious little, if any such in Virginia, unless they have been made so, by the application of marl, lime, or ashes; yet I have seen melilot growing in almost every part of the state which I ever visited.

As to the fertilizing properties ascribed to it by your correspondent, I believe that it possesses some, if ploughed into the lands. But many other plants possess as much, if turned in of the same weight, with this difference in their favor, that they will not interfere with any subsequent crop of small grain, as melilot inevitably does. It certainly has more vegetable matter after it reaches maturity, than any of our high land plants, for it grows taller, and equally thick. But in that state no plough ever yet formed can

bury it; the growth must be burnt off before the land can be worked by any implement. And then, with such an indestructible occupant, (for it is perennial, with tap roots—like the trumpet flower, which penetrate the earth to the depth of at least three or four feet—) our fields become unfit for the culture of small grain, and are thereby deteriorated much more than benefited, by sowing them with melilot as a fertilizer. That it may be so I will not deny; but in all the situations wherein I have seen it growing, it seemed to me to be rather the *effect*, than the *cause* of fertility. And this, by the way, is a mistake which careless observers of the vegetable world have not unfrequently made. I once heard a ludicrous instance of it related of an old farmer who was remarkable for great eccentricity of thought and action. Thus ran the story. The old man had taken a crotchet into his head, about planting corn time, that poke-root would enrich land; because he had always seen it grow in rich soils. Forthwith therefore he ordered a quantity of it to be dug up--sufficient to drop a piece or two in each corn hill, and chuckled at it as a grand discovery. But he was greatly disturbed the next day, by receiving notice that his overseer was about to quit him. As he was an excellent manager, who had long lived with the old fellow, on perfectly friendly terms, he anxiously sought an explanation of this most unexpected notification. This he obtained, after long importunity, by the overseer's addressing him thus:—"Why sir, if I must tell you why I gave you notice, it was because I don't understand any thing at all of your philosophy way of planting corn; and am sure, if I try it, that I shall lose my character, upon which I and my family depend for a living." The conference, ('twas said,) ended in the old man's giving up his "philosophy way" of enriching corn-hills by poke-root, and retaining his good overseer. I remain, dear sir, your old friend, COMMENTATOR.

If there was any thing to condemn in the form, or for the insertion of the piece commented on above, the fault was ours, and not the writer's, who had not intended, and had given no authority for its being so used. It was part of a long private letter, from a gentleman of the highest character, and whose ability for, and habits of careful observation are not often surpassed, and whose former contributions to this journal have been among the most acceptable and valuable. Deeming it the best mode of obtaining the information he desired, on a subject which his words showed manifestly he had not much or long experience of, we took the liberty of publishing the passage from his letter; but, of course, did not presume to use his name, or otherwise indicate the author. Writing under these circumstances, even if the remarks had been obnoxious to the charge of still greater incorrectness, they would have deserved no censure—or if any, it should be cast on the publisher without authority, and not on the writer. The writer is as well able to defend himself as any person; but as it is probable that he may not choose to thus pursue a matter which he did not designedly commence, we shall add something in defence or explanation of his statements.

We admit, and defer to readily, (and so we are sure would our prior correspondent,) the much more full experience of our friend "Commentator," in regard to melilot; and we are glad that his testimony has been thus drawn forth to prevent other mistakes as to the value of this plant. But still, to one who had seen much less of the plant than "Commentator," on less favorable soils, and therefore of smaller size, though still of remarkable luxuriance, for the soil—surely it was an error of opinion which was very nearly allied to accurate observation and correct deduction, to suppose that melilot would be a valuable plant for enriching land by its growth. We had formerly taken up (upon similar grounds) the like opinion; and we tried, in vain, (and luckily, as it now appears,) to spread the growth by scattering the seeds. A very intelligent friend and neighbor of ours, on whose farm grew a single patch of melilot, was so favorably impressed with its supposed value as an improving green crop, that he saved the seed and sowed it extensively; but, though on marled land, we believe that his efforts, like our more limited attempts, were totally fruitless.

Next, as to the melilot furnishing green food in winter, we have no question (upon Commentator's closer observation and better information,) that our first correspondent was mistaken;—but that it was owing to his relying, for that fact, on statements of others, and not having himself had full opportunity for observation. Except in regard to the mistake, on this minor point, he was strictly accurate in all his premises, and also in his deductions from all the facts before him. Still, by showing that the premises are more usually varied, and much for the worse, "Commentator" has clearly shown that the views first presented were mistaken.—ED. F. R.

COMPRESSED PEAT FUEL.

From the Perth Courier.

We have referred to a machine, some time ago invented by Lord Willoughby d'Eresby, and latterly perfected by skilful artisans under his direction, for compressing peats. One of his lordship's tenants, on the Drummond Castle estate, Mr. Clark, at Coryour, has of late been manufacturing the new fuel, chiefly for the jewellers and steel forgers in England; and this week a very large supply arrived at the new quay for

shipment to London. It is made up in the shape and size of soap bars, and so powerful is the compression employed that the original peat is hardly to be recognized in the black and metallic looking mass which the machine perfects. The properties of this fuel are found to be highly advantageous in the branches of manufactures above referred to, and its great economy is evidenced in the reduced price at which cutlery wrought with it is offered for sale. Sheffield razors, bearing the mark "peat compressed," have been on sale this year throughout the country, we have been informed, as low as 27*s.* per dozen. We look for a rapid extension of the use of this valuable invention of Lord Willoughby's, not only as offering the means of procuring for the inhabitants an abundant supply of a more cleanly and useful fuel than they have hitherto, from their inland situation, been able to obtain, but opening up to them a profitable branch of industry, for which the field is nearly as inexhaustible as that of the material.

CRUELTY TO HORSES. THE HAWS AND THE LAMPAS.

March 17*th*, 1841.

The present communication will consist of a word or two in behalf of the horse. Although he is acknowledged on all hands to be far the most useful of all the brute creation ever yet domesticated by man, I believe it may truly be said, that none are so cruelly and barbarously treated as the horse. Hardships and bodily sufferings excrutiating in degree, and utterly useless to ourselves, are often most wantonly inflicted on him. He is frequently deprived of his ears and tail, by an excessively painful operation, merely to gratify a most preposterous, absurd, and inhuman fashion; he is often killed or crippled in our selfish and sinful struggles to win each other's money by racing, or in working him far beyond his powers to increase our wealth, or in the idle, ridiculous amusement of moving our precious persons from place to place with more rapidity than any of our senseless rivals in the same sport have ever done before. But still worse, still more brutal than all, after the faithful animal has entirely worn out and exhausted, in his ungrateful master's service, all the energies which nature had given him, and is no longer capable of any kind of work whatever, he is turned adrift, to die of old age and starvation! Would not those who act thus brutally to horses, treat their fellow men in the same way, if public sentiment had not stamped such conduct towards human beings with the indelible stigma of utter detestation and abhorrence?

The foregoing are all cases of undeniable, enormous barbarity, which, however shocking to our humanity, are not to be cured either by persuasion or reproof; for the perpetrators, *generally*, are persons far beyond the reach of any moral appliances whatever. But there are some instances wherein the horse is cruelly treated, not from design, nor mere disregard to his wants and well-being, but from sheer ignorance. The most remarkable of these instances is, the quack-remedy for two diseases to which the horse is liable. These are the "*haws*," vulgarly but improperly called "*hooks*," (for there is no such word in any scientific book of farriery,) and the "*lampas*." The first takes its name from the "*haw*," of which the following account is given in that excellent treatise on the horse, published by the English Society for the Diffusion of Useful Knowledge.

"We have, (says the author,) a provision for supplying the eye with the requisite moisture, and for washing from off the transparent part of it insects or dust which may annoy the animal. What becomes of these impurities when thus washed off? Are they carried by the tears to the corner of the eye, and so pass down this duct, and irritate and obstruct it; or do they accumulate at the inner angle of the eye? There is a beautiful contrivance for disposing of them as fast as they enter the eye. Concealed within the inner corner of the eye, or only the margin of it, black or pied, visible is a triangular shaped cartilage, the *haw*, with its broad part before. It is concave within, exactly to suit the globe of the eye; and it is convex without, accurately to adapt itself to the membrane lining the lid; and the base of it is reduced to a thin or almost sharp edge. At the will of the animal, this is suddenly protruded from its hiding place, passes rapidly over the eye, and shovels up every nuisance mixed with the tears, and then, being speedily drawn back, the dust or insect is wiped off as the cartilage again passes under the corner of the eye.

"How is this managed? This cartilage has no muscle attached to it, and the limbs, and the different parts of the body, when put into motion by the influence of the will, are moved invariably by muscles. The mechanism is simple and effectual. There is a great mass of fat at the back of the eye, and the eye may be easily moved; and this fat is particularly accumulated about the inner corner of the eye, and beneath, and at the point of this cartilage. The eye of the horse has likewise very strong muscles attached to it, and one, peculiar to quadrupeds, of extraordinary power, and by whose aid, if the animal has not hands to ward off a danger that threatens, he is at least enabled to draw the eye back almost out of the reach of that danger.

"Dust, or gravel, or insects, shall have entered the eye, and annoy the horse. This peculiar muscle suddenly acts. The eye is forcibly drawn back, and presses upon the fatty matter. That may be displaced, but cannot be squeezed into less compass. It is forced violently towards the inner corner of the eye, and it drives before it the haw; and the haw having likewise some fat about the point of it, and being placed between the eye and an exceedingly smooth and polished bone, and being pressed upon by the eye as it is violently drawn back, shoots out with the rapidity of lightning, and, guided by the eyelids, projects over the eye, and thus carries off the offending matter.

In what way shall we draw the haw back without muscular action? Another principle is called into play, of which we have already spoken, and of which we shall have much to say—*elasticity*. It is that principle by which a body yields to a certain force impressed upon it, and returns to its former state as soon as that force is removed. It is that by which the ligament of the neck, while it supports the head, enables the horse to graze,

by which the heart expands after closing on and propelling forward the blood in its ventricles, by which the artery contracts on the blood that has distended it, and by which many of the most important functions of life are influenced or governed. This muscle ceases to act. The eye resumes its natural situation in the orbit. There is room for the fatty matter to return to its place, and it immediately returns by the elasticity of the membrane by which it is covered; and it draws after it this cartilage with which it is connected, and the return is as rapid as the projection.

"The old farmers strangely misunderstood the nature and design of the haw, and many of the present day do not seem to be much better informed. When from sympathy with other parts of the eye laboring under inflammation, and becoming itself inflamed, and increased in bulk, and the neighboring parts likewise thickened, it was either forced out of its place, or voluntarily protruded to defend the eye from the action of the light, and could not return, they mistook it for some injurious excrescence or tumor, and proceeded to cut it out. The "*haw in the eyes*" is a disease well known to the majority of grooms, and this sad remedy for it is deemed the only cure. It is a barbarous practice; and if they were compelled to walk half-a-dozen miles in a thick dust, and without being permitted to wipe or to cleanse the eye, they would feel the torture to which they doom this noble animal, when afterwards employed in their service. A little patience having been exercised, and a few cooling applications made to the eye while the inflammation lasted, and afterwards some mild astringent ones, and other proper means employed, the tumor would have disappeared, the haw would have returned to its place, and the animal would have discharged the duties required of him, without inconvenience to himself, instead of the agony to which an unguarded and unprotected eye must frequently expose him.

"The loss of blood occasioned by the cutting out of the haw may frequently relieve the inflamation of the eye; and the evident amendment which follows, induces those wise men to believe that they have performed an excellent operation; but the same loss of blood by scarification of the overloaded vessels of the conjunctiva,* would be equally beneficial, and the animal would not be deprived of an instrument of admirable use to him."

Of the lampas, and its proper treatment, the highly valuable work just quoted gives the following account.

"Some of the lower bars, (in the upper jaw of the horse's mouth,) occasionally swell, and rise to a level with, and even beyond the edge of the teeth, and they are very sore, and the horse feeds badly on account of the pain he suffers from the pressure of that food on the bars. This is called the *lampas;* and it may arise from inflammation of the gums, propagated to the bars, when the horse is shedding his teeth; (and young horses are more subject to it than others); or from some slight febrile tendency in the constitution generally, as when a young horse has lately been taken up from grass, and has been over-fed, or not sufficiently exercised.

"In the majority of cases the swelling will soon subside without medical treatment; or a few mashes and gentle alteratives, will relieve the animal. A few slight cuts across the bars with a lancet or penknife, and taking care to avoid the principal artery* and vein of the palate, will relieve the inflammation, and cause the swelling to subside; indeed, this scarification of the bars, will seldom do harm, although it is far from being so necessary as is supposed. To the brutal custom of the farrier, who sears and burns down the bars with a red hot iron, we do most peremptorily object. It is torturing the horse to no purpose; and it is rendering that part callous, on the delicate sensibility of which all the pleasure and safety of riding and driving depend. It may be prudent in case of lampas, to examine the grinders, and more particularly the tushes, to see whether either of them is endeavoring to make its way through the gum. If with the gum lancet, or penknife, two incisions across each other be made on the tooth, the horse will experience immediate relief."

And now, Mr. Editor, before I conclude, suffer me most earnestly to recommend the study of the volume from which I have quoted so largely, to all persons who may be desirous to become acquainted with the anatomy of the horse—with the various diseases to which he is subject, and with the proper methods of treating them. Even if they consult only profit, to the utter disregard of humanity in the management of their horses, they will find no work of its size, I believe, which contains any thing like the same amount of information, both scientific and practical, in regard to all they may wish to know of the subjects upon which it treats. Moreover, it is very entertaining as well as instructive, for the first part of it contains many interesting anecdotes of celebrated English horses, and their extraordinary performances.

JAMES M. GARNETT.

NOTES ON THE SANDY POINT ESTATE.—NO. I.

To the Editor of the Farmers' Register.

Sandy Point, March 17th, 1841.

It has often presented itself to my mind, that if some of your numerous contributors to the pages of the Farmers' Register, instead of merely detailing the results of some experiments, and these generally only such as are successful, would favor your readers with a series of communications, which would not only embrace the result of any particular set of experiments, whether successful or otherwise, but which would also include a statement of their whole practice and general mode of management, that they would not only confer a greater amount of benefit on the agricultural community, but, in return, would themselves derive a greater amount of individual benefit. Do not suppose that I undervalue these interesting reports of experiments—they have doubtless been the means of diffusing much valuable and useful information; but, as a large proportion of these reports go no farther than a simple statement of results,

* The conjunctiva is that membrane which lines the lids, and covers the fore part of the eye.

* This vein is along the centre of the upper jaw, and the artery on each side, about mid-way between *that* and the rows of teeth.

omitting what is all-important to the general and inductive agricultural reader, a statement of the former and present condition of the soil, on which successful experiments have been made, and a correct detail of the means adopted to obtain such results, the want of this information is liable to lead others into errors, who may be induced to try the attainment of similar results, under circumstances entirely different; and whose unavoidable want of success leads them to doubt or altogether discredit such reports. Nor is the evil confined to the doubting of such reports, but has also a tendency to lessen in the estimation of many the value of agricultural communications, and the valuable journals through whose medium they are circulated and presented to the public.

With these views, and if the mode and object contemplated meet your approbation, I propose in this and subsequent communications to give you a statement of the present condition of the extensive farm now under my care; our general mode of operations, improvements about to be effected, and such results as may be obtained, whether they may prove successful or the reverse. I am well aware of my incapacity to do justice to such a subject; one thing, however, I will promise, that nothing but facts shall be stated; or, that where false inferences may be drawn, they will be the result of error of judgment, not intentional. I am also well aware that communications of this nature from a source so humble, will, with many, subject the writer to the charge of egotism. To such I have no other apology to offer than to state, that though I own neither a slave nor one foot of land, but fill the humble station of manager of a farm, I am willing to communicate my practical experience, not only with the view of benefiting others, but in the hope, that by eliciting remarks from others of more experience and sounder judgment, I may by that means be enabled to attain such additional knowledge as may not only benefit myself, but may also enable me thereby to render my services more efficient and profitable to my esteemed employer. I consider it my imperative duty that my employer shall not only reap the full benefit of whatever practical knowledge or experience I may now possess of agriculture, but that I should use every effort in my power to increase and improve such knowledge, not only for my own, but his benefit. Whatever statements of *practice* may be contained in this, or following communications, must be considered as carried into effect either under the immediate instructions of my employer, or with his express sanction and approbation. Though not a constant resident on his estate, he never loses sight of the operations going on, or the measures most conducive to his interests and the improvement of his property. There are also some of your readers who I know not only consider the attempt of a farm manager to commit his views and practical experience to the pages of an agricultural journal as an unpardonable offence, but who also consider the reading of such periodicals as being entirely beyond his province; and who will also censure the proprietor who keeps an individual so presumptuous in his employment. To such there need no excuse or apology be offered. It cannot but be matter of regret to every liberal mind, that so many of those whose livelihood is obtained as overseers of farms, are not only incapable of committing their views to writing, but who from ignorance are incapable of reading or appreciating the important benefits which they, and, through them, their employers, might derive from the perusal of such periodicals; perhaps some will say, "Where ignorance is bliss 'tis folly to be wise."

The estate now under my care is that of Sandy Point, situated in the lower end of Charles City county, Va., and now the property of Robert B. Bolling, esq. In the present communication I shall endeavor to give a short and general description of the estate in its present condition, reserving for a future opportunity statements which will point out improvements now in progress or about to be commenced.

The location of this beautiful estate is on the immediate bank of the James River, along whose shores it extends upwards of six miles, and is probably a location unsurpassed by any of the numerous and fine estates in this section of country. The area of the whole is, from old surveys, estimated at 8000 acres; and the area of that portion now under cultivation is 2372 acres, at present divided as follows into, 1st, The Neck, or lower farm of 600 acres, cultivated in three fields of corn, wheat, clover; 2d, Teddington farm, of 700 acres, 600 acres of which are also cultivated in three fields as above, and 100 acres divided into five 20-acre lots and cultivated in 1st. corn, 2d. wheat, 3d. clover, 4th. wheat, and 5th. clover. 3d. Upper Quarter farm of 536 acres. This division of the estate is now nearly one half in wheat after clover and weed fallow, one fourth will be in corn this year, and one fourth in oats and peas as a preparatory fallow for wheat. 4th. The Rowe farm of 536 acres. This farm has also formerly been cultivated in three fields; but contemplating an entire change of the now existing divisions of the estate, there will, as a preparatory measure be no corn cultivated this season on that portion of it, two thirds of which are now in wheat after clover and weed fallow and after corn; the remaining third is in clover and its natural growth of grass and weeds; the whole of this last division will be in corn in 1842.

The surface of the arable land in all of these divisions is level, yet sufficiently undulating to afford facilities for the necessary drainage. The highest portion of the land is probably not more than 20 or 25 feet above high water mark, the texture of the soil throughout is excellent and very nealy uniform, very little of it can be properly considered as a sandy loam, and still less could be classed as a clayey loam; a supposed medium between these would probably best designate the very nearly uniform texture of the general soil. Gravel is very rarely to be met with, pieces of rock of any description are also rarely to be seen. The general character of the soil is, I believe, what you class as a neutral soil; the only exceptions to this character are on the portions most remote from the river, or where the original soil has been washed off by galls. Occasional small spaces are to be found, where the natural growth of broom straw and sorrel would indicate an acid soil. These spaces however are small, and constitute only the exception. The color of the soil presents several variations, the prevailing is however a chocolate. The whole of the soil is susceptible of the highest improvement, and in its original and virgin state was doubtless very productive, and wherever

lime has been applied, the benefits resulting from its application have been very decided. The application of calcareous manures has hitherto been very limited. The exertions now making to supply this deficiency, will be noticed in a subsequent communication. The average crops for the last 10 years have been 5000 bushels of wheat, and 10,000 bushels of corn. Six acres are also cultivated in cotton, not as a saleable article of produce, but to supply the necessary material for the clothing of the negroes, and to furnish employment to a number of old infirm women who are unable for field labor. In addition to the present arable portion of the estate, there are upwards of 300 acres cleared, and which has formerly also been under cultivation, and is now enclosed and used as a park, or summer range for cattle and sheep, a portion of it is also included in the hog pasture. The general texture and character of this soil is totally different from that of the now arable land. Neutral soil is here a scanty exception, the acid being the prevailing soil. A considerable portion of the woodlands bordering on the river have formerly been under culture, and are now chiefly filled with a heavy growth of pines, or where free from forest growth, broom straw is abundant; that large portion of the estate yet under its natural forest, is heavily covered with much and valuable timber, the surface is generally level, though broken into occasionally deeper ravines than on the cleared lands. On the borders of the Tomahund creek, which forms one of the boundaries of the estate, and yet in its primitive forest growth, the occasional growth of locust would indicate the presence of neutral soil. The larger proportion of the woodland soil I believe to be of an acid character. There is very little swamp or tide marsh on the estate. On the river boundary there are probably not more than 30 acres in all, and that divided into several and small portions, and might probably be easily reclaimed into permanent meadows. The chief body of marsh is on the Tomahund creek; and the whole there probably does not exceed 100 or 150 acres.

The number of slaves employed in agricultural labor may be stated in round numbers as 90, nearly equally divided as regards the sexes. To this number is to be added 7 carpenters, 2 blacksmiths 2 sawyers, 1 weaver, 1 sick nurse, and 9 old and infirm men and women employed chiefly in spinning, winding, knitting, making baskets horse collars, &c. The gardeners, fishers and house servants are not here included. The laboring force may justly be considered effective, quiet and well conducted. The police regulations amongst them are strict, yet salutary and encouraging. They probably exhibit, altogether, more happiness and contentment than is often to be met with amongst so many slaves. In addition to existing regulations prohibiting their intercourse with other negroes, the isolated situation of the estate is highly favorable to maintaining this necessary restriction, and greatly promotes the orderly and circumspect conduct so gratifying amongst them; their general hours of labor are from sunrise to sunset, with necessary intervals for meals. They are comfortably lodged and clothed, and are well fed. An ample allowance of meal, and one half pound of bacon (or its equivalent in beef or fish occasionally) is daily cooked for each hand together with a plentiful supply of seasonable vegetables; a hospital is kept for the accommodation of the sick, where there is a careful nurse to attend to them and every necessary attention paid to their comfort.

The number of horses and mules employed in farming purposes are 38. These are good and efficient animals. To these are to be added 6 young animals of this description—76 oxen are also kept for farm purposes, many of these are aged, and with a few exceptions their general description is inferior. The other stock on the farm consists of 30 cows, 1 bull, 37 young cattle, and 109 sheep, exclusive of lambs of this year. The latter stock are only kept for the purposes of supplying wool for negro clothing and mutton for family use. A few lambs are however annually sold. The general character of both cattle and sheep is decidedly inferior. Until recently little attention has been paid to the proper ages when they were permitted to breed, or to guard against their breeding in and in, the inevitable consequences of which have been the deterioration of stock originally perhaps not remarkable for good qualities. Mr. Bolling is now judiciously adopting measures for the speedy improvement of every species of stock, which it is hoped will shortly raise them to greater perfection and value.

On an estate so extensive, the raising of an adequate supply of pork for the heavy domestic consumption is an important item, and probably in no other department of the farm management have the results been less satisfactory. The breed is the common Virginia hog, and the present stock may be stated at 200 hogs. Their description is inferior, the same causes operating to diminish the value of cattle and sheep, as stated above, have been operating on the stock of hogs to an extent even more injurious. Add to this the heavy losses yearly incurred by hogs getting estray and becoming wild. Not less than 50 hogs have been thus lost last season. And what greatly aggravates the nature of such losses, is the fact, that they are often turned loose from their enclosed range, into an extensive body of unenclosed woodlands, by the wanton negligence of individuals hunting within the enclosures pulling and leaving the fences down. Measures are also being adopted to improve the character of this valuable stock, and which will subsequently be more particularly adverted to.

On each of the divisions of the estate, the buildings for farm purposes are ample, though neither arranged nor located so well as they might have been. The buildings, with the exception of those on the Teddington division, are old. An entire remodeling, adapted to the intended improvements on the estate, is now being commenced, and in another communication will be more particularly described. The family mansion house is beautifully located on a gentle eminence about seventy-five yards from the river, having a sloping lawn down to high-water mark, now in process of being enlarged. The garden and grounds around the house are tastefully laid out, and filled with many ornamental shrubs, and is now being further beautified by the planting out of numbers of the most ornamental of native forest trees, which is, in my opinion, in decidedly better taste than by crowding together numbers of expensive and unacclimated exotics. An extensive and thrifty young apple orchard is also well located in the near vicinity of the house.

I fear I have already encroached too far on your patience. If the object of this communication meets your approbation, I will at an early date give you a detail of the various improvements now in progress and contemplated, in the several departments of the rural economy on this estate, as from the above you will easily perceive there is ample room for improvement. Future communications will also point out more accurately existing defects now shortly stated, when we come to contrast them with the improvements effected. Our general mode of management and results will also subsequently follow as leisure and opportunity offer. Respectfully your humble servant, A. NICOL.

INQUIRY AS TO THE PROSPECTS OF SILK CULTURE.

Charlotte, Va., Feb. 20, 1841.

The Register has contained latterly but little on silk culture, which I fear is a strong indication that you are by no means sanguine of the success of the experiment. I should be much pleased to learn your sentiments at this time, with all the lights which the experience and speculations of culturists have thrown on that subject. Our acquaintance, Mr. Edmund Morris, with a liberality and benevolence equalled only by the gratuitous distribution of his paper on silk culture and multicaulis (a costly gratuity to some poor souls) is circulating a new paper without charge. He seems to think the business cannot be carried on with success without the aid of his invention for ventilating. Do you think it can be with all the facilities of his discoveries and the 'Burlington Silk Record' in the bargain?

Our correspondent has correctly inferred that we are much less sanguine than formerly of the success of silk culture in Virginia; and we have already stated at length in an article in the last volume, (page 510,) our latest views on this subject. We presented the grounds on which had rested our previous almost perfect confidence, and also the causes of subsequent disappointments, and great abatement of hopes and expectations. But we did not then despair, and have not yet despaired; and hope that the further investigations, and patient and full trials of the many intelligent culturists who will still persevere, will serve to show how the diseases and disasters of last year may be avoided, and general success and profit be achieved. We have much, though not entire confidence, in the new theory of Dr. Gideon B. Smith, as to retarding the hatching of silk-worms' eggs; and, if he is right in his views, they certainly serve to account for most of the failures from disease last year. We have not designed, and would be very unwilling, to say any thing to discourage our readers from further and sufficient trial of silk culture—though (now even more than formerly, but as at all times,) we would recommend the utmost care and caution to be used in their mode of procedure and operations.

In regard to the more particular inquiries, we have only to say that we know nothing of the merits of Mr. Morris' newly invented silk-worm frame, except from his own publications. We hope it may be all that he recommends it for; but we confess our general distrust, in the absence of the most abundant proof, of the facts, information, instruction and advice, which have proceeded in such quantity from the same abundant source.—ED. F. R.

ON DESTROYING SLUGS BY LIME.

From the London Farmer's Magazine.

Sir,—As the season is again approaching, when innumerable fields of what ought to be our most productive wheat land, (that is, our strong clays after beans,) afford to the agriculturists but a miserable prospect, owing to the ravages of the slug; allow me through the medium of your most excellent journal, to inform them of a cheap and effectual cure,—one which I have adopted for several years and always with the greatest success. My plan is as follows:—as soon as the wheat should show itself from one end of the drill to the other, but which, owing to their voracious appetite, appears but on the milder and finer parts of the field, I procure as many four bushel sacks of unslaked lime fresh from the kiln, as I have failing acres of wheat, and place the same in one or more heaps in the field, as occasion may require, and the dryness of the ground will permit; then choosing the first mild and misty day, (or indeed the first day I can find them well out,) send two men as sowers into the field, each taking a breadth of four yards or one land with us, the first man always keeping in advance from 15 to 20 yards. The instant he has scattered the lime, to extricate themselves they cast away their only shield of defence, which is their slime; the second man then overtakes them in their naked state, and the smallest particle falling upon them is instant death. I consider two great savings are effected by this mode of killing them, time and expense. Having noticed several people twice ploughing their land, harrowing, rolling, &c., for no other purpose than that of destroying them, and whilst doing the same, perhaps a heavy rain sets in, and the seeding put off till spring; whereas, by my plan, they may proceed with getting in the wheat as soon as the beans are off the land, and the total expense of destroying the slug, including carriage, sowing, &c., does not exceed from 3s. to 3s. 6d. per acre.

Should this meet with the attention of any brother clay-land farmer, I have not the least doubt of its success, and shall feel happy in being instrumental in procuring him a full crop of wheat. I remain, sir, yours very respectfully,

Nov. 23rd. A LINCOLNSHIRE FARMER.

CALCAREOUS EARTH DISCOVERED IN A NEW FORM AND A NEW LOCALITY.

To the Editor of the Farmers' Register.

Charlies Hope, Abbeville District, S. C., March 14th, 1841.

As you are constantly complaining that planters refuse to communicate any little information they may possess, or to request solutions of doubts and difficulties, that may present themselves, I have at last been tempted to acquaint you with a discovery that I have made of lime in some one or other of its numerous combinations, and at the same time to request the aid of your knowledge, and experience, to ascertain whether the discovery is likely to lead to results beneficial to the agriculture of the section of country in which I reside.

My plantation and residence is in Abbeville district, South Carolina, about half way between the centre of the district and Savannah river, distant about six miles from the latter. I have been particular in designating my location, as it has been universally believed that no lime existed in this part of the state. The region of country to which I refer, lies between the shell marl formation, which runs through the low country, (below Columbia, crossing the Savannah river into Burke county, Georgia,) and the lime-stone of Habersham in Georgia, and Spartanburgh in this state, distant respectively about 80 miles. My attention has been for some years (thanks to your work) turned to the subject of lime and marl, and accidentally, a short time past, I found the substance which I will proceed to describe to you.

I commenced, some months past, draining a portion of low grounds on Little River, a tributary of the Savannah, for the purpose of cutting off the hill waters which in rainy seasons made it too wet for cultivation, and also for turning a stream which ran through its centre, so as to alter its course to the base of the high lands; the ditches are several hundred yards apart, and their united length would be rather more than half a mile. The land is all subject to be covered several inches by the very highest freshets. The body of land to which I particularly refer, contains, on both sides of the river, about 300 acres. The great proportion of the land is a rich, strong alluvial soil, of a dark chocolate color, to the depth of 10 to 12 inches; beneath this first coat lies a light blue, and very tenacious clay, with apparently no silicious matter, and invariably at the depth of 30 inches from the surface, we came to the marl, if it be marl, to which I alluded. This body of earth is not so tenacious as the superincumbent stratum of blue clay, and when thrown out by the spade crumbles a little, but still adheres in masses. This stratum is 13 inches thick along the whole line of both ditches, and contains a substance of a dirty white color, resembling in shape and size Jerusalem artichokes, the largest mass never exceeding the size of a hen's egg, and the smallest not larger than mustard seed. These concretions are so hard as to require considerable pounding to reduce them to powder; but when well pounded, become as fine as flour. I observed that when struck with the pestle, they separated in layers, or thin peelings, if I may be allowed the expression, and that the inside was of a bluish color.

I analyzed a number of the concretions, (according to your directions in Vol. 1st,) and found them to contain 80 per cent. of the carbonate of lime. I then took a spade full of the earth, without selection, as it was dug up, containing of course many of the larger and smaller concretions, and carefully picked out all the concretions larger than a pea. I then dried and reduced to powder about one pound of this earth, from which I took 100 grains, which yielded 42 per cent. of carbonate of lime. I afterwards got the aid of a gentleman who, from his knowledge of chemistry, is fully capable of accurate examination, and the result he obtained corresponded to mine within a fraction. The growth of timber on this land is birch, poplar, ash, maple, and some gum. It may be necessary to state that the high lands, adjoining the low grounds, were originally productive chocolate or mulatto lands, and hard to wear out, or they certainly would have been completely exhausted ere this.

I can make no use of this substance for the improvement of my land; for in order to manure an acre of upland, I should be forced to destroy the fifth or sixth of an acre of land, worth 50 dollars. It is therefore useless to me, unless I can discover a thicker deposite; and it is respecting the probabilities on this point that I request the aid of your knowledge.

It may be proper to add, that on sinking a pit below the stratum of marl, say to the depth of 5 feet, we came to sand completely saturated with water, and the spade sunk almost by its own weight, two feet or more. The concretions of marl have no appearance of shells or of the impressions of shells. Excuse the length of this communication, which is at your service to burn or print.

CHARLES T. HASKELL.

The facts stated above are to us mostly of novel character, and highly interesting. The stratum, as described above, is certainly very rich, and, we infer, might be used for manure just as when dug up, without the labor of separating and pounding the lumps. However, so far as the larger lumps might be easily separated, it might be advantageous and economical to do so, for the purpose of burning them to quick-lime, either for cement, or to reduce them (if very hard) more quickly for manure, than mere exposure would. The concretions, from the description, seem to be like those found in Prince Edward county, Virginia, and in Loudoun, the first body of which was described in the first volume of the Farmer's Register, and the latter in the eighth volume; but the whole deposite of the South Carolina body is much richer than those in Virginia.

We differ much from Mr. Haskell, as to the supposed difficulties and objections to the use of his marl. Instead of admitting that the marl furnished by a certain space would manure only five or six times as much surface, we suppose that one acre would furnish enough to marl 50 acres. For a dressing of a quarter of an inch thick would be very heavy, (perhaps much too heavy,) and at that rate, the 13 inches thickness of the stratum

would serve to cover 52 times as much land as the space dug from. Again, we see no reason why the space thus dug up, and the two upper strata mixed together, in the digging, should be ruined, or even much injured, by the operation, unless by lowering the surface too much, and thereby increasing the danger of inundation by freshets. The mere mixture of soil and subsoil, especially when the marl itself would be more or less disseminated throughout the mass, we are sure would still leave a good and improving soil. Besides, by a proper course of procedure in digging, and without much additional labor, the original rich surface soil might easily be kept principally on the top, after removal. And, provided the land could be kept as dry as before, we think it probable that the ground thus dug up and shifted, would be even a more productive soil than before.—Ed. Far. Reg.]

CANKER WORMS—CHICKENS.

From the Farmers' Gazette.

Mr. Storer :—I wish through the medium of your gazette, to call the attention of our citizens to a fact which occurred within my own personal knowledge; and if like causes produce like effects, (and I see no reason in this case why they will not,) a fact of importance to all who are sufferers from the ravages of the canker worm. The fact is this :

In the spring of 1840, I purchased three hens, which raised a brood of chickens each. When my fruit trees in my garden became literally covered with the canker worm, I thrashed them with a pole to the ground, where they were picked up by the chickens as greedily as they would pick up corn or grain. Several times a day I fed them in this manner, until I had entirely cleared my trees of the worms. Now, as to the result : in the month of November last, in some *very warm* days, when the moths were crowding up the elms in front of my residence by hundreds, I made repeated examinations of my fruit trees in the garden, for the purpose of preventing the moths from ascending; but to my surprise, I found (nor could I discover) but a *single* moth on a tree in my garden, where there had been for several successive years before, as many millions of worms as there were locusts in Egypt.

This method, I believe, will be found altogether the most simple and economical, of ridding effectually our gardens of this troublesome insect, for it will be found that the chickens, while young, are of immense advantage in *other* respects than merely to clear off the canker worms. The millions of insects of every description, which are revelling in luxury on our cucumbers, our cabbages, and in fact *every* vegetable in the garden, at a heavy tax upon our labor and patience, are *entirely* eradicated by these industrious birds. As soon as it is light in the morning, and before the cut worm has finished his depredations upon our beans and cucumbers and retreated in safety to his bed in the ground, they have found and stopped his mischief. Then again, in the winter you have the pleasure of picking their bones in a fricassee, or a pie, or any other method you prefer.

But their value as a complete annihilator of the canker worm, is beyond praise. Let a farmer but set four or five coops in his orchard of a hundred trees, and by a little attention for a few days in cleaning the trees, his work is done for years, *the race is destroyed*. It is, in my opinion, better than all the lead pipe in the country, and no expense. Yours, &c., G. F. H. R.

New Haven, March 10, 1841.

ON THE DURABILITY OF NITRATE OF SODA.

From the Mark Lane Express.

Sir,—I observe, in your last paper, an inquiry repeated by Mr. Symonds, as to the durability of cubic-petre, as a fertilizer, which has been recently made on several occasions. There is no doubt but that its effects extend beyond the first year of its application; this is certainly the case with saltpetre—thus Mr. Kimberley, of Trotsworth, when he used it upon his clover land, found that its effects were equally great upon the following crop of wheat.—*Journ. Roy. Ag. Soc.* vol. i. p. 276. Mr. Wilsher experienced a similar result.—My *Essay on Saltpetre*, p. 30. Mr. Lee, who successfully used it for barley, found it improved in an equal ratio the following crop of clover.—*Edin. Quar. Jour. of Ag.* vol. i. p. 302. Mr. Oakley, of Preston, in Hertfordshire, says, "it survives to the succeeding crop."—*Essay on Saltpetre*, p. 38. It is a very erroneous conclusion, that saline manures are speedily washed out of the soil by the rain, for I ascertained some years since, by very careful experiments with common salt, that at the expiration of twelve months, sixty per cent. of the quantity originally applied remained in the soil.—*Essay on Common Salt*, p. 156.

I am glad to find that the use of cubic-petre is extending so successfully. In some recent trials on the estate of his grace the Duke of Norfolk, detailed by Mr. Anderson of Oakley, the following results were obtained (for an account of which I am indebted to Mr. E. Purser, of New Bridge-street, an extensive dealer in these powerful salts) :—

One hundred and fifty pounds' weight of nitrate of soda per acre, were sown on a portion of a field of clover in April, 1840; the remaining part of the field was not manured. The clover was cut on the 6th of July; on the 11th, when in a good state to cart, the clover was weighed.

	Ton.	cwt.	qr.	lb.		£	s.	d.
Produce per acre, where the nitrate of soda was sown	3	1	1	20	value 4*l*. per ton	12	5	9
Produce per acre, where the nitrate of soda was not sown	2	4	1	24	value 4*l*. per ton	8	17	10
Difference in quantity per acre	0	16	3	24	In value	3	7	11
Cost of nitrate of soda per acre, and sowing						1	9	0
Profit, per acre, from the use of the cubic-petre						1	18	11

The benefit derived from thus increasing the produce of clover will hardly ever terminate with the first crop. It is a well-known fact amongst

the Essex farmers, that by whatever means they increase the produce of clover, the yield of the following crop of wheat will be in a similar ratio improved. I am, sir, yours, faithfully,

CUTHBERT W. JOHNSON.

14, *Gray's Inn Square, Dec.* 3, 1840.

ON THE IRRIGATION OF RICE LANDS BY PUMPS.

From the Southern Agriculturist.

I have been desirous to obtain some machine to irrigate rice lands: in furtherance of this object I wrote to Mr. J. Beare, Pall Mall East, London, the inventor of a pump, said to combine many advantages. I propounded several questions concerning his pump, and I enclose you his reply. Some rice planters are situated on rivers, that in dry seasons become too salt at high water, to flow the land with, but which are fresh from half ebb to half flood tide. An efficient pumping apparatus would render lands in such situations as safe to plant, as those not having the evil of salt water to contend with. Inland swamps too might be drained or flowed at will. The only objection I see to the pump, (taking Mr. Beare's replies to be correct, which I do not doubt,) is the price. The quantity of water lifted per minute, would flow an acre six inches deep in twenty-four and a half minutes. If you could obtain any further information on this subject, you would perhaps benefit a number of rice planters by publishing it, at any rate you would one of your

SUBSCRIBERS.

—

7 Pall Mall East, London,
6th July, 1840.

Sir—I have the favor of your letter under date, Savannah, (Geo.,) 15th May last, acquainting me that Capt. T. Baylis, of the British E. I. Army, has conveyed to you an opinion, that my *new plan, or new principle* in pumps, must be extremely useful in irrigating rice lands.

You have submitted to me also a number of questions, and I have much pleasure in putting the same again under your notice, together with my replies thereto, given seriatim, and which will, I think, be found perfectly clear and satisfactory.

I am very happy to learn that many rice plantations in your quarter of the world require to be improved and benefited in the way you point out, that much uncultivated land also may be brought into use, with a cheap and durable apparatus for irrigation and draining.

In the low lands throughout England, the patent pumps are getting into general use, and all the old methods are being fast laid aside. We are beginning now to experience a good continental demand, and have lately had with us a deputation from the king of Holland, to consult on the draining of the Haerlem lake.

I am quite sure, if I can have the honor of a liberal correspondence with you, no doubt can exist but a considerable number of our machines, both as pumps and as hydraulicans, will be readily and advantageously disposed of.

And if, on the receipt of these my respects, you will indicate from the descriptions given, what machines shall be forwarded to you, at the same time favoring me with your remittances to any amount you may think proper, from £50 to £500, you may depend that the machinery shall be prepared and forwarded with the utmost care and attention, and that the prices charged for the same shall be the very lowest possible, to insure the carrying out a liberal correspondence. Waiting the favor of your advices, I am, with respect, sir, your most obedient servant,

JOHN BEARE.

Ques. 1st. What quantity of water can be raised per minute from five to nine feet high, by a ten-horse-power steam engine driving a pump or pumps?

Ans. 1st. We are now working a pair of hydraulicans under my patents, with a ten-horse-power steam engine, and this pair of pumps deliver, at an altitude of eleven feet, twenty tons of water per minute, two hundred and ten imperial gallons to the ton, and a cubic foot of water being sixty-two and a quarter pounds, the stream produced by this pair of pumps, when in full action, is nine feet wide and fourteen inches deep.

Q. 2d. Will it make a difference in the working of the pumps, if it be placed in tide water, which rises and falls six feet.

A. The effect of tide water is quite immaterial, otherwise than when the water is highest, the pumps will work the lightest.

Q. 3d. How many pumps, and what power will be necessary to raise seven hundred and thirty-five cubic feet of water per minute, from five to nine feet high?

A. Reckoning the cubic foot of water at sixty-two and a quarter pounds avoirdupois, and ten pounds being the imperial gallon, seven hundred and thirty-five cubic feet of water per minute will be equal to twenty-one tons, eighty-three gallons per minute. And, as lifting from five to nine feet high only, is so much less than eleven feet, as stated in answer to query No. 1., a ten-horse engine to this power lift, would give by the pair of pumps about nine hundred cubic feet, or twenty-six tons, one hundred and sixty-five gallons of water per minute.

Q. 4. Will your patent pumps be less liable to injury from alternate cold and heat, moisture and dryness, than the pumps in ordinary use?

A. The patent hydraulicans can take no injury, if the working parts are kept well oiled.

Q. 5th. Can your pump, if it becomes damaged, or worn by use, be repaired by mechanics, not particularly drilled to such work?

A. The patent pumps can readily be refitted by any one capable of handling a tool, requiring no nicety.

Q. 6th. What will be the price of a pump or pumps which will raise seven hundred and thirty-five cubic feet of water from five to nine feet high per minute?

A. The price of a pair of patent hydraulicans, as set forth in answer to query No. 1, and to carry out the work therein stated, will be £265.

Q. 7th. Will either manual labor, horse power, or a wind mill be as cheap and effectual in working your pumps, as a steam engine?

A. Cannot estimate the cost of manual labor with you. Wind is proved a bad motive-power

for raising water, because of its uncertainty. And steam-power is contingent on price of fuel with you.

Pro forma.—A double action patent fountain pump in cast iron, cast iron suction or breeches piece for five-inch piping, with cast iron standard and wrought iron fire engine leverage, and wood cross pieces, having brass expresser buckets, with butterfly valves, leather connectors in metal rings, screw bolts, metal lower boxes and spindle valves, wrought iron rods, bolts, nuts, pins and keys, complete, to power No. 10*—£18 10d.

A double action patent fountain pump in cast iron, as above, complete to power No. 8†—£26 10d.

A double action patent fountain pump in cast iron, as above, complete to power No. 5‡—£35.

The above machines are built expressly for manual labor; they are very simple in their construction, but of course the labor, whether sharp or slow, will supply a larger or less delivery.

Power No. 10, double action, as above stated, at thirty strokes per minute, delivers five thousand four hundred gallons per hour, and at thirty-five strokes per minnte, delivers six thousand three hundred gallons per hour.

Power No. 8, double action, at thirty strokes per minute, delivers nine thousand gallons per hour, and at thirty-five strokes per minute, delivers ten thousand five hundred gallons per hour.

Power No. 5, double action, at thirty strokes per minute, delivers twenty-one thousand six hundred gallons per hour, and at thirty-five strokes per minute, delivers twenty-five thousand two hundred gallons per hour.

ANALYSIS OF PRAIRIE SOILS FROM MONTGOMERY COUNTY, (ALA.)

By Professor Shepard.

From the Southern Agriculturist.

Three specimens of prairie soil were brought to me for examination by Dr. C. Bellinger, of Alabama. They were taken from a plantation seven or eight miles in a south-easterly direction from the town of Montgomery.

No. 1 is a fine black mould from timbered land, which was situated rather low. It produces cotton to advantage when the season proves dry, and is well adapted to other crops, whether the summer is dry or wet. It varies in depth from six feet to one inch.

No. 2 is a fine snuff-colored soil, and is the best land for cotton in the country. Small grain (oats, wheat and rye,) and corn sometimes do well upon it also; but it is less suitable for these crops than No. 1. It varies in depth from one inch to ten feet.

No. 3. This soil is called "bald prairie." In color it is grayish white, with a slight tinge of yellow, or fawn. It coheres into small lumps, which are variegated from the presence of white calcareous spots—the remains of shells. It is considered as poor land, though it answers for small grain and grasses tolerably well. It is not adapted to the cotton crop.

No. 3 forms the underlie of No. 1 and No. 2, and is itself found resting upon the "rotten limestone."

Equal weights of the above soils were thoroughly humected with pure water, when their weights had increased from 100 to

177	in No. 1.
157	in No. 2.
162	in No. 3.

After drying for 48 hours in a room, at 70°, their weights were as follows:—

101.7	in No. 1.
101.5	in No. 2.
102.0	in No. 3.

No. 1, in drying at a temperature of about 320°, lost 8.8 p. c. of water; after which it was ignited until all organic matter present was dissipated: the additional loss thus accruing was 16 p. c. The alumina, carbonate of lime and silicious ingredients were then determined as usual. The result of which inquiry, gave in the hundred parts of earthy matters, as follows:—

Alumina, with peroxide of iron,	12
Carbonate of lime,	10
Insoluble silica (or fine sand,)	78
	100.0

No. 2.—

Water of absorption,	6 p. c.
Organic matter,	8 p. c.

The proportions among the mineral constituents were as follows:—

Alumina and oxide of iron,	8.
Carbonate of lime,	7.7
Insoluble (fine sand,)	85.5
	101.2

No. 3.—

Water of absorption,	7 p. c.
Organic matter,	5 p. c.
Carbonate of lime,	35 p. c.

I did not determine the proportions of alumina and silica, presuming that their ingredients have to each other a ratio similar to that found in Nos. 1 and 2.

The iron in this soil is partly in the condition of a carbonate of the protoxide, in place of being a hydrated peroxide, as in Nos. 1 and 2.

Charleston, (S. C.,) March 19th, 1841.

NITRATE OF SODA.

From the London Farmers' Magazine.

Capt. Alexander has published, at the request of the East Suffolk Agricultural Association, the essay on the soils of that district, for which he obtained Mr. Long's prize. It contains much that is valuable, and from it we select the following extracts, which particularly appertain to some of the soils of this county.

"The employment of nitrate of potash (saltpetre) and nitrate of soda (cubic-petre) have of

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* This engine will deliver, with a constant flow, about six thousand three hundred gallons per hour.

† This engine will deliver, with a constant flow, about ten thousand five hundred gallons per hour.

‡ This engine will deliver, with a constant flow, about twenty-five thousand two hundred gallons per hour.

late been used to a great extent, and there appears to be no doubt of the beneficial effects; and it forms a fair presumption, that the fertilizing power of our compost heaps may be attributable to the quantity of calcareous nitrate, formed by a due admixture of earth and manure in our usual mode of forming composts.

"In Prussia, the nitrous earth is prepared so much after the manner in which we form compost heaps of manure, that I must be excused for transcribing the method as I find it in the Encyclopædia Londinensis. 'Five measures or parts of black vegetable earth, or the earth of subterranean caverns, are mixed with one measure of wood or vegetable ashes, and some straw; these articles, beat up with water of dunghills, or draining of yards and sewers, are formed into walls or beds, twenty feet long and three feet wide below, two feet wide at the top, and six feet high; they are covered with light straw, and moistened from time to time, and at the end of the year are fit for washing.'

"In Malta they employ the most porous calcareous earth, mixed with straw; a layer of this earth and a layer of dung alternately follow each other, until they are six feet high; this is sprinkled with water from dunghills, and occasionally turned, it then becomes fit for washing in three years: during the first year the beds are sprinkled over with slaked lime every month.

"In Sweden, a layer of meadow turf, ashes and lime, and the draining of sewers, stables, &c. are sprinkled over in a similar manner; then a layer of straw is put on, and these layers are continued above six feet. These beds are defended from rain, and occasionally moistened with the drainings of stables, &c.; they then begin to yield nitre at the end of a year, and continue to yield it for ten years; it is swept off every eight days, and after each sweeping is watered as before; the remaining matter at the end of ten years forms an excellent manure.

"In the canton of Appenzel, they take advantage of the situation of their stables, which are built on the sides of mountains, to have a trench under the floor; into this trench they cast porous earth, and emptying it once in three years, thus obtain a ton of saltpetre from an ordinary stable.

"Whoever compares these and similar modes of obtaining nitre, with our common practice of raising compost heaps, will be struck with the coincidence, that both appear to be managed for a like purpose; and if so, that in the proportion in which we raise nitrate of potash, (saltpetre,) and nitrate of soda, (cubic-petre) so is the value of our compost heaps, more or less; but the inference to be drawn is, that we may pursue the system with more accurate results by a slight attention and observation. First then it would appear, that in collecting our calcareous earth, whether it be chalk, crag, marl, or clay, it should if possible be chosen from the north face of the pit, and where it has been some time exposed; that it should be mixed in much larger proportion to the manure than is generally practised; that it should lay in alternate layers, rising six feet high; that it should be occasionally watered with the water of dunghills, drainings of yards, or where this cannot be obtained, with salt and water, slaked lime being occasionally added, and that these heaps should have one whole summer or year to propagate nitre. We are also instructed in the use of mortar rubbish, gypsum, &c.

"There is a practice among the smaller farmers, who keep a few young stock and cows in heavy land, of forming their compost heaps from the out-hollowings of ditches, with small proportions of wet straw from their cattle yards, in which no great quantity of manure from the cattle exists; and I have often been surprised that sufficient effect could be produced by so small an admixture of manure, among so much apparently inert matter; but when we consider that this assemblage of materials from the ditches comprises the facings of banks, which have been shaded, and the dead leaves of the fences, and water washing from the surface soils, I am inclined to attribute the good effects to the production of nitre by these manure heaps, and to suggest that if they could be allowed more time to collect nitrogen from the atmosphere, they would be more valuable.

"It would then appear advisable in forming manure heaps, to place them at the north side of a barn, near to some tank into which the drainings of the yard are collected, from whence they may be watered; and to keep them covered with light straw, and in other respects to imitate the artificial formation of nitre beds above described, and especially to allow the heaps a whole year; this may be afforded by allowing them to have so much calcareous and clayey compost, as to form two heaps from the same quantity of manure as under common circumstances would be appropriated to one, and I am inclined to believe that one load would prove as valuable as two. I am aware that the advocates for using raw manure will look upon my recommendation as erroneous and militating against their views. I will come to this subject presently, and ask for a suspension of judgment; at the same time admit that rather than lose the virtues of the raw manure, which I have seen too frequently lavishly expended in evaporation, and by drainage, that under these circumstances the advocates for using it have much to say in favor of the practice; but when compost heaps are formed with due attention to the above observations, it will no doubt lead to beneficial results.

"The result of my observations upon chalk is, that it is valuable as an addition to sand, mixed lands, and loam, gravel, London clay, and most especially to peat, or fibrous deposite; and as such soils are generally deficient in this constituent of all fertile lands, an addition of this to the above enumerated ones affords very immediate and beneficial effects; but in all the soils and strata compounded of the three; chalk, London clay, and marine deposite, a sufficiency already exists in the compound, and therefore on these soils its value is chiefly to be estimated by its combination with other substances, so as to form chemical affinities, and produce other compounds.

"Where soils are composed of chalk without a due admixture of silicious matter, the epidermis or outer coat of the straw is not so hard as it should be. On these lands mildew is prevalent, while near the sea coast where the marine deposite of sand forms the principal ingredient, mildew is rarely to be met with.

"I shall be understood better if I explain the nature of mildew. '*Mildew*' is a parasitical plant

of diminutive growth, which has no power of growing except by the supply of the sap from wheat, straw, or other substances exuding from vegetables; the seeds of this plant are floating in the air generally in the summer time; it is supposed by some to be fostered and brought into maturity by the barberry bush, and it is probable that this plant may afford it support without itself suffering perceptibly, and seeding may supply seed to other plants, and on this account mildew may be first discovered in the neighborhood of the barberry; but unless the predisposing cause existed in the stalk of the wheat, the mildew could not by possibility take effect.

"Now the predisposing cause is in a great measure in the soil, and thus we find some districts much more liable to its attack than others. When the soil is very deficient in silex, or not having that due mixture which enables the roots to absorb sufficient silex to form a hard epidermis; the object is to add such substances as will afford the power. I therefore recommend sand, red sand which contains oxide of iron is the best, but drift sand and road sand, the harder particles of cinder dirt, refuse from the soap boilers, barilla and salt, will be the most efficacious remedy. A high state of cultivation will not improve these lands so much as a supply of these component parts of a hard epidermis to the straw; for these lands are generally in themselves good staple lands, and, if properly managed, highly productive in wheat and beans.

"I have dwelt thus long upon the chalk formation, because it is one which forms the greatest variety in its chemical compounds, and exists in the greatest abundance."

ACTION OF ACIDS IN SOILS.

Extract from the Proceedings of the first Agricultural Meeting, in Boston. Reported by the Agricultural Commissioner.

At the conclusion of the address, some desultory conversation took place, as to the mode of conducting the meetings, when Dr. Charles T. Jackson, the Geological Surveyor of Maine, Rhode Island and New Hampshire, was kind enough to respond to an invitation to give some account of the agriculture of New Hampshire, it having been announced to the meeting that a farmer in New Hampshire had this year raised more than one hundred and thirty bushels of corn to the acre.

Dr. Jackson remarked that he had visited the farm on which this corn had been raised. It is situated in a place called Merino Island, in Lake Winnepiseogee, and owned by E. H. Derby, in Boston. The land is a coarse granite soil, and is under high cultivation. A large stock of cows and sheep was kept upon the island, and manure was abundantly supplied. The island, on account of the water, is little subject to frosts. (This farm has been repeatedly distinguished by its excellent crops and its very profitable management, of which an account was given at the meetings, the last year.—*Reporter.*)

Dr. Jackson proceeded to speak of the lands on Connecticut river in New Hampshire. The lower alluvions are remarkable for their grass crops. The farmers on the upper parts of the river are now in the habit of appreciating their manure much more highly than formerly. In general, the farmers are very ignorant of the mode of forming compost manures. It would be easy to instruct them in the means of converting many substances, now useless, into the most valuable manures. The theory of chemical action is now better understood than formerly. Where rotten logs are suffered to lay upon the ground, no vegetation grows around them; yet these may be converted into manure. Peat, unmixed, suffered to lay upon the ground, produces only sour crops. On this account the Long Island farmers objected to its use. All vegetable substances, in undergoing fermentation in the process of decay, produce acids; but, by the application of alkalies, there are rendered not only harmless, but useful. The decomposition of small quantities of animal substances produces ammoniacal gas, an important element in vegetable growth. By the application of lime this ammonia is absorbed and held for the use of the plant, to be taken up by its vital action. To the credit of many farmers, it may be said that, although ignorant of chemical processes, they are eager for instruction, and ready to try experiments.

The doctor proceeded to compare briefly the soils of the Connecticut and the Merrimac. The soils of the Connecticut are more favorable to wheat than the Merrimac. (There are some material facts in the way of conceding this point, though, perhaps, the position may be admitted upon the whole.—*Reporter.*) The Connecticut river soils are calcareous; the Merrimac soils granitic. The rocks in New Hampshire, composed of granite and mica slate, disintegrate with remarkable rapidity. The quantity of vegetable matter in the Connecticut soils is not abundant, not exceeding seven or eight per cent. (This is not a small comparative amount.—*Reporter.*) The appocrenate of soda abounds in Connecticut river soils. Geine consists of the apocrenic and crenic acids combined with lime, soda, manganese and potash. It forms soluble salts with potash, and, in this form, is strongly favorable to vegetation. Feldspar and mica, the constituents of granite, contain potash.

The great slides from Mount Washington, which, in 1827, proved so fatal to the family living in the Notch, though consisting of pulverized masses of granite, are now covered with a luxuriant vegetation. Soils will be found forming from original rocks. The rocks and soils become converted into very fine powder by the influence of acids in the atmosphere, and the action of living plants upon them. How powerful this action is, may be known from the fact that hyacinth bulbs will corrode and decompose the glasses in which they are grown, (Silex enters largely into many plants, and Liebig is of opinion that pounded glass, the silicate of potash, may hereafter be used as a manure, in certain conditions of the soil.—*Reporter.*) Plants, by their vital action, will decompose rocks. Rocks, composed of feldspar and mica, have a proportion of potash, and the plants will get at and assimilate it. Chemistry has not yet discovered the food of plants. In certain stages of their growth, they obtain carbonic acid from the air. The decomposition of manures in the soil supplies them with nitrogen

and carbonic acid, and this carbon is converted into wood.

The doctor kindly promised to enter more largely into the subject at some future evening.

H. C.

PEAT COMPOST.

From the New England Farmer.

Almost every agricultural writer is inclined to ride some hobby. *We find ourself* inclined to bridle and saddle "*muck*"—to buckle on spurs and drive ahead. The way before us is *miry*, and we may get bespattered: but a little mud has had no terrors for us in days of yore, and we have no fears that we shall prove a coward in leading as many farmers as will follow us, to an attack upon swamps and muck holes.

These bog meadows are among the best lands in the eastern part of Massachusetts, and they contain in abundance materials by which we may, and by which we *shall*, in a few years, greatly enrich our uplands. These bogs are the most valuable part of our farms. This assertion is made deliberately. We are aware of its extent and its import. We have made it seriously, and we predict that not many years will pass away before its truth will be generally admitted.

Leaving at present all consideration of their worth for cultivation, we wish to draw attention to them as sources from which manure can be obtained. Muck, *properly prepared*, and spread over our uplands, will greatly enhance their fertility. "Stop, young man"—methinks I hear the aged farmer saying—"Stop, young man. I have used this muck, and experience tells me that it is sour stuff, doing often more harm than good to the uplands. Such is the lesson which *experience has often taught.*" We do not deny it—we do not doubt it; we know that it is true. Muck, as it comes from its bed, is often, is almost always, sour; it will impart of its sourness to the soil on which it is applied. This sourness is the natural product of the decomposition which the vegetable matters composing the muck have undergone. And until that sourness is removed, this meadow mud is not a manure; it does not furnish food for plants; but as soon as the sourness is removed, as soon as the acid is neutralized—this muck is nourishing to the crops that we cultivate.

How then can we remove the acid or counteract it? Exposure to the actions of frosts and winds, rains and suns, will do much towards effecting the desired change. Farmers might do well to have three or four years' supply always on hand, and then not use that which has not had three or four years' exposure to the weather. But it is not necessary to wait thus long in all cases before we avail ourselves of the use of this article. We can, by the use of animal manure and lime, neutralize the acid of the muck in a few months or weeks, and thus more speedily enlarge our manure heaps.

The principles of making composts from muck, dung and lime or ashes, as recommended by Dr. C. T. Jackson, of this city, we gave in our report of his remarks at the State House; but deeming them most highly important, we make no apology for repeating them in our own words. Take one cord of dung, and mix it thoroughly with two cords of muck, that has been for several months, at least, exposed to the action of the atmosphere. Then apply one half of a cord of muck to the outside of the heap, as a coating; pat this coating hard and smooth as you can with the shovel. If the whole be covered with straw or hay, this will be an improvement. Let the mass lie in this state for several months; to mix in the autumn and suffer to remain until spring, is a good course. Then, about 10 or 15 days before the manure is to be applied to the land, take one bushel of unslaked lime, to a cord of compost. Slake this lime, but do it with so little water that it shall be a fine, dry powder. Now throw over the heap, mixing this lime well into the mass. Again coat the whole heap with another half cord of muck. The whole four cords in the course of two weeks will become good manure. The ammonia given out by the dung, will have neutralized the acid of the muck.

Heaps formed at this season my answer for use after the middle of May; though it would be better to allow a longer time. We make an earnest appeal to such farmers as have the materials in readiness to try this process and *adhere closely* to the rule. We wish to know distinctly whether science here is furnishing a valuable rule to guide us in our art.

Imagination carries us, reader, to your fireside, and hears you saying, "I'll try that, but I'll save some of the labor; I'll put my lime in when I first mix up the heap." It is our turn now to say "Stop, sir, stop."--We want, before you go to work, to tell you that the great object is to neutralize (or counteract, or fix or destroy) *the acid in the muck.* The more ammonia you can extract or set free from the dung *at once*, the more effectually you will do your work. Now lime applied to dung, *in its green state*, will not help to throw out ammonia half as fast as if the dung be *considerably decomposed* before the lime is used. If, then, you save the labor in the way proposed, you fail to get that large quantity of ammonia, at one time, which, if produced, would work like leaven through every lump and particle of muck in the heap, and neutralize the acid.

"Well, then, Mr. Editor," you say, "I'll save labor by letting the dung get *considerably* decomposed before I go to work upon it, and then will put in both muck and lime at once." Do so, sir, if you please; but if you do, the winds will have carried much of your ammonia to Maine or to Georgia, before you begin to use it; and therefore the quantity of muck which your dung will change into manure is very materially lessened.

Let the dung, while green, be mixed with muck, because the ammonia which passes off in its first stages of decomposition, will then be saved and used. But do not put your lime in for several weeks, because its action upon dung that has undergone considerable change, throws off ammonia much faster than from fresh dung. The faster the ammonia is generated or set free at any one time, the more thoroughly it will penetrate the muck.

The *principal* use of the lime in this process is, to generate ammonia rapidly from the dung. This ammonia is the strong smelling effluvia or gas, that goes off from the fermented dung heep. The same substance is sometimes called *harts-*

horn, and is used in ladies' smelling bottles. The great object is to generate or liberate *this* under such circumstances that it shall pass into muck and counteract its aid.

But does not lime itself, when put into the muck heap without dung, neutralize the acid? It does, as far as it comes in contact with the muck. Why not then use muck and lime alone, or muck and ashes alone, without putting in dung? Because in such cases, the lime and ashes act but little on any other parts of the muck than those which *touch* the lime or ashes. There is no steam—no gas—to penetrate the lumps and do the work thoroughly. But put in the dung—raise the *steam*—and the steam, if properly confined by the outside coating of the heap, will penetrate every lump and particle, and make the whole good for nourishing plants.

Urine will answer the same purposes of dung in this process of neutralizing acid. Ashes will answer in the place of lime. Loam my be substituted for muck, but is far less valuable.

Again we urge it upon farmers to consider this subject well; for we are satisfied that *the best manner of preparing muck* for use on our lands, is one of the most important practical questions now agitated by our agriculturists.

We will dismount now; but it will not probably be long before we shall bestride our hobby again.

ON THE FAILURE OF NITRATE OF SODA AS MANURE.

From the London Farmers' Magazine.

Sir,—Being a constant reader of your excellent publicaton the "Farmers Magazine," and referring to a letter from David Barclay, Esq., in number 5 for November of this year, I cannot but express my surprise and disappointment, that with so many very clever and well-informed agriculturists in the Rape of Arundel, no one has stated to you the general failure and great loss sustained by the use of nitrate of soda on wheat last spring, in a district extending from the river Arun west, to the Adur east, and from the sea-coast south to the Weald of Sussex north, comprising every sort of soil, management, and situation.

I am a very bad hand with my pen, and shall therefore content myself with stating that the few instances of success form the exception to the general rule of failure.

Hoping, if you insert this letter in your next number, it may excite some more efficient person to address you on the probable causes of the failure I have referred to, I am, sir, your obedient servant, IGNORAMUS.

Arundel, Sussex, December 19th, 1840.

SEVENTH AGRICULTURAL MEETING.

[*Feb. 25.—Mr. King in the chair.*]

The secretary announced the subject of discussion—Soils and Manures.

Mr. Teschemacher, Superintendent of the Botanic Garden and Conservatory, in Boston, presented three pots of geraniums, one of which had been grown in the natural method, two by an artificial process. Mr. T. stated that he had recently read Liebig's work on organic chemistry, as connected with agriculture, and considered it a valuable contribution to science. Liebig stood very high in his profession as a chemist; and presented views in relation to soils and manures, quite different from those which are usually entertained. Liebig supposes that plants, by decomposing the air, receive a considerable proportion of their nourishment from the atmosphere. The plants which he presented to the meeting, he called his Liebigites, because they wore grown under the application of Liebig's principles, though this was undertaken before Liebig's work had been seen. The geranium grown in the common way presented a leaf four inches across. The geranium grown by the artificial process, was from seed sown last September, and was potted last December, and the leaf of it now was six and one half inches broad. This was a remarkable growth. He supposes the effect may be as great in the flowers as in the foliage. If he is successful in producing flowers corresponding with the size of the leaves, he will acquaint the public with the process which he has adopted. The subject has a direct bearing upon agriculture. What affects one species of plants, will be as likely to affect others. In this case there was no poudrette used; and he considered the result remarkable and encouraging.

Dr. C. T. Jackson inquired whether these principles are peculiar to Liebig; or are they well known, and such as have been published in other works. He thinks Liebig's discoveries not original. The existence of ammonia in rain water is not a new discovery. There was no doubt it might always be found in rain water falling in the vicinity of cities; in such a situation Liebig discovered it. Mr. Hayes, of Roxbury, discovered it in the rain water in Vermont.

Mr. Teschemacher inquired whether the discovery had ever been made known before it was made known by Liebig. It does not appear that it has been.

Dr. Jackson then proceeded, agreeably to appointment, to speak of *Soils and Manures*.

He stated that he had had little leisure to prepare himself for the evening; and he must draw upon his recollection for facts. He has devoted many years to agricultural chemistry, with a view to the advancement of agricultural science. He wishes particularly to present some important rules in the management of composts.

His first remarks would have relation to soils. All soils originate from the crumbling and disintegration of rocks. Under the influence of air, water, frost, and mineral substances in the rocks, the hardest of them will be reduced to powder. Soils vary according to the different characters of the rocks from which they are derived. This is distinctly shown in nature; and it will be found that groups of plants are peculiar to certain soils. Simple soils consist mainly of one mineral substance; compound soils of several united. Alluvial soils which are formed by the flowing of water, by which various matters are taken up and deposited together, are of course compound soils, as they embrace a variety of elements. Diluvial soils are found in those parts of the country where there are evident traces of a rush or flood of wa-

ter pouring from the north, by which large rocks were hurried onwards and various soils commingled. Soils embrace a variety of mineral elements; such as silex or flint, alumina or clay, lime, magnesia, oxide of iron, oxide of manganese, potash, and soda. These are important to constitute a soil. Silex serves to open the soil; alumina, or clay, if found alone, constitutes too tenacious and close a soil. Soils composed almost entirely of lime are too porous, and suffer the rain too soon to pass through them.

A soil must contain at least three earths: silex, alumina, and lime; and, besides these, other elements must be found in soils in order to the production of certain plants. Soda and potash are required in the soil for the production of particular plants. Plants must find the element necessary to these plants, in the soil, or they will not flourish. Clover contains gypsum or the sulphate of lime. Gypsum, therefore, must be found in the soil in which we expect clover to flourish. The seeds of all the cereal grains contain phosphoric acid, united with lime and magnesia, and this acid is very rarely found in the soil in a free state. When free, this acid is pernicious. A soil which is acid cannot be fertile. It is rarely fertile when exclusively alkaline. The acids and the alkalies should be in proper proportions. Soda and oxide of iron likewise, when united with acids, form bases. Mineral constituents may vary much; but certain other substances, such as saline and organic matters, cannot vary much without affecting the fertility of the soil. Many substances in the soil are derived from the decay of organic substances. The first plants on the earth, it is supposed, drew their nutriment from the atmosphere. These were a very hardy kind of plants, which could almost live on mineral aliments. Carbon is taken up and oxygen eliminated. Brongniart supposes that the atmosphere in the beginning was more highly charged with carbonic acid than now. Plants served to prepare the air for the respiration of human beings. Plants draw carbonic acid from the air. The air contains one ten thousandth part of carbonic acid. Saussure found that this proportion did not vary in the air on the summit of Mount Blanc. Gay Lussac, who ascended in a balloon higher than any one before, and at twenty-five thousand feet obtained air, found, upon analysis, that this air contained as much carbonic acid as that near the ground. Carbonic acid is every where equally mingled with the atmosphere. If two jars are taken with hydrogen gas in one, and carbonic gas in the other, the latter placed undermost, the two gases will mingle, though a bladder should be placed between them; half carbonic acid will be found above, and half below; the one gas will be intermixed with the other, contrary to the specific gravity of the two gases. The atmosphere is composed of four-fifths nitrogen and one-fifth oxygen. They are not chemically combined but mechanically united. Were a chemical union to take place, it would become nitric acid, and we should be deluged in aquafortis. Hydrogen and oxygen gases when poured into the same receiver, are said to be mechanically united, but when the electric spark is introduced and water is formed, they are chemically combined, and a complete union is effected.

Organic matters from the decay of plants form mould. Plants will not grow upon a mixture of mere earths; or rather will not perfect their seeds without organic matters. [The Dr. here entered into some remarks upon what he deemed erroneous views in Liebig's theory of vegetation and the operation of manures; but as these will presently be given to the public under the Dr's. own hand in his forth-coming reports, where he can state them fully, and backed by what he deems conclusive evidence and authorities, we omit this part of our report. *Reporter.*]

Vegetable matters decaying on the surface produce vegetable mould. He, Dr. J., prefers to retain this name. This mould is highly charged with carbonic acid and contains many acids. Vegetable matters in their decay produce acid. A fallen tree in a state of decay destroys vegetation in its vicinity. Plants will not grow round decaying logs. It is difficult to induce farmers to use peat, because they say it will produce only sour crops. The acids produced by the decay of vegetable matters are numerous. Vegetable mould is not a simple substance. Some chemists have given it the name of humus, ulmin, ulmic acid. Berzelius has examined this substance, and found it possessed of various properties. He called it geine or apothme in his work published some years ago, but has now abandoned these designations. These names have since been adopted by chemists in this country. So far from being a simple substance many substances are included in it. In a late work Berzelius says there is no such thing as geine, considered as a simple or elementary substance. Within the last three years he, Dr. J., has found the various substances to which Berzelius refers as existing in it. By his own independent examination he (Dr. J.) has discovered them. Berzelius in a work in German received within a few days has described them; and they correspond with his (Dr. J's.) discoveries. In respect to some of them he has anticipated the discoveries of Berzelius.

There are ten distinct matters found in this substance called geine, which substances he exhibited at the meeting. The substance called geine contains the crenic and apocrenic acid. The acid forms an insoluble substance with lime. The crenic acid derives its name from *Krene*, the Greek word for fountain, as Berzelius first discovered it in the waters of a well in Sweden. This acid is yellow, semi-transparent, soluble in water and alcohol; and forming soluble combinations with alkalies. Apocrenic acid was found as the crenic was found. He (Dr. J.,) has found these two substances in soils and peats in Maine, Rhode Island, and New Hampshire. Berzelius has not yet discovered them in peat, but presumes their existence in it. Humic acid is distinguished by forming a gray precipitate with the subacetate of lead. Crenic acid contains much less nitrogen than the apocrenic acid. Humic acid contains nitrogen. The apocrenic acid is the only one which forms insoluble salts with lime. The crenic acid forms soluble compounds, and exists in the subsoil as the crenate of lime.

From black, brownish soils, the humic extract was obtained by Berzelius. In some cases, *glairin* is found. All these substances form soluble salts with lime. These acids form soluble salts with lime. These salts are decomposed in the process of vegetation. Bog-iron contains apocre-

nic acid. What Berzelius now calls humic acid, and extract of humus, have no relation to substances formerly known as such. They are to be considered as new names for new matters. Apocrenic acid is found in bog-manganese; peat contains large quantities. Humic acid in peat is precipitated by the subacetate of lead, as the doctor ascertained three years ago. This is exactly the matter described by Berzelius. Peat contains apocrenic acid, and humic acid. Peat thrown on the soil produces sour grasses. It is necessary to neutralize peat by alkalies, and thus to saturate the acids, in order to make them useful. The soils from the farms at Winnipiseogee lake, which have produced more than one hundred and thirty bushels of corn to the acre, are full of vegetable matters. These soils abound in the above-mentioned organic matters. He would make another remark in relation to the doctrines of Liebig, and to illustrate, likewise, his former position in reference to the filtration of manures. In the copper mines of Chessy, in France, some beautiful stalactites are found, of a green color, and a foot in length, containing the crenate of copper. These could have had no origin except by filtration from the top-soil. They have fifteen per cent. of crenic acid. These stalactites, therefore, contain organic matters.

The farmer, with a view of testing the truth of any principle, should take care to make experiments with exactness, otherwise, he will do no justice to the principle itself, and can never arrive at certain conclusions. He may compound his peat with night soil, and leave it over the winter. In the spring it may be dug over and mixed with lime. It is said often, that lime is of no use. If applied after it has been air slaked, or without being slaked in the form of carbonate, its use will not be perceptible; but applied immediately on being slaked, the manure will be completely decomposed. In the process of decomposition, it will give off large quantities of ammoniacal gas. The heap being covered with mould, will absorb the ammonia. Potash has the same action as lime, on putrid animal substances. Ashes operate as lime operates, but not with as great strength. Alkalies are found under various forms; solid, gaseous, and liquid. Vegetable manures abound in acids, and require to be compounded with alkalies. Animal manures are most powerful in producing ammonia. Ammonia exists in the atmosphere in cities and their vicinity. The quantity in the air is minute, but great quantities are given off in burning coal. If you mix soot with potash, or the hydrate of lime, you will find ammonia. In order to ascertain whether ammonia exists universally in rain water, we must procure this water from the interior. Liebig made his inquiries in the neighborhood of the city of Geissen. Mr. Hayes has found it in the waters of Vermont. Ammonia is valuable as a solvent, but he (D. J.) does not know that it enters into the composition of plants.

Dr. Jackson then kindly replied to many inquiries which were made to him. He was of opinion that the reason why the application of lime had failed in many cases, was, that the limes applied were of a magnesian character. He said likewise, that lime applied in the form of a carbonate must not be expected to produce its effects until the second year, when the soil becomes saturated with carbonic, and other acids, and no longer prevents the plants from obtaining their needed supply.

Mr. Newton, of Pitsfield, President of the Berkshire Agricutural Society, said that this last effect corresponded with his own experience; that while in the liberal application of lime to a field, he saw no effect the first year, the second year the crop of grass in that field was most abundant. Precisely the reverse was the case with ashes on an adjoining lot.

Mr. Newton added that in respect to the application of the calcareous marls of Berkshire, from which so much advantage had been expected, he had applied them without realizing these beneficial effects.

Dr. Jackson farther remarked, in answer to inquiries, that in regard to the operation of gypsum, the subject was still involved in total obscurity. As to the use of common muck in compost, he considered it of equal value with peat. In regard to the mud of salt-marshes, he deemed it not so good as peat, and that it required longer time for decomposition. The salt contained in it, however, he was of opinion might be beneficial to the land. We feel that we have done and could do but imperfect justice in such a report as this, to the learned gentleman, who favored the meeting with his instructions and his patient and ready answers to the inquiries which were made. We are by no means prepared to acquiesce in all his positions; but we have endeavored to report them truly. They will call attention and provoke inquiry; this is the only road to truth; and to the inquisitive, philosophical, and practical mind, truth is the first object of pursuit, the philosopher's stone, the pearl of inestimable value.

The secretary announced that Mr. Geo. B. Emerson, of Boston would address the next meeting on the subject of trees. Much instruction, and gratification may be expected from the able and extensive inquiries of this gentleman. H. C.

ON PREPARING NIGHT-SOIL.

From the London Farmers' Magazine.

Sir,—I feel obliged to your correspondent, G. Brabyn, for his valuable remarks on preparing night-soil, and hope he will be so kind as to inform me through your paper, whether ammonia escapes from the dung in the yards where cattle are fed in winter, or if it remains in solution till the heat of fermentation in the dung-camps in spring disengages it. I consider it is of importance, that farmers should know if they should apply gypsum to prevent the loss of ammonia in their cattle-yards, or if it be merely necessary to do so in the dung-camps when they begin to ferment.

Would it not be proper to sprinkle the layers of dung, as they are placed in the camp, with gypsum, to make sure of retaining the ammonia?

I wish also to know from whom in London I can procure genuine gypsum in powder, as the most part of two tons which I used on clover this year was evidently plastered lime, ground down.

Your obedient servant,

Nov. 27, 1840. J. MACKENZIE.

To the Editor of the Mark-Lane Express.

Sir,—In reply to Mr. Mackenzie's letter, published in your journal of Monday last, I beg to state that I *do* consider there is a considerable escape of carbonate of ammonia from farm yards where cattle are fed during winter. As purtrefaction goes on so carbonate of ammonia is generated, (whilst nitrogen remains in the compound,) which is held in solution in the water present, and as the water evaporates so does the ammonia with it. Therefore we cannot apply gypsum in too early a stage of the decomposition, after which the same loss would result if water were allowed to drain from the yard without being used as manure.

All dung piles ought to have a body mixed with them having greater affinity for ammonia than carbonic acid, or else a great part of the ammonia will be lost; but if it be applied in the farm-yard, in sufficient quantity, it need not be applied afterwards.

I believe with your correspondent, that "these things are of importance," and not so much attended to as they ought, for I have seen men and horses toiling up the hills with ponderous loads of (so called) manure, when in fact very little manure existed in it, whilst they leave the most valuable manure scattered about their farm-yards and fields fermenting and dissipating in vapor, "carried away upon the wings of the wind," serving their neighbor's purpose as much as their own.

I am a great advocate for using manure as early as possible, that its decomposition takes place in the earth in the midst of vegetation, and none of its elements would be lost. Thus the death and dissolution of the present generation would spring up into life in a new one.

I am, sir, your obedient servant,
Wadebridge, Dec. 9. GREGORY BRABYN.

SILK CULTURE.—IMPORTANT DISCOVERY.—THE MUSCARDINE IN AMERICA.

From the National Intelligencer.

Probably the most important information it has ever fallen to the lot of the writer of this to communicate to the public, on the subject of silk culture in this country, will be found in the present article. It has long been known to every one who has read much on the subject of the silk culture, that, by the ravages of a disease called *muscardine* in Europe, the average loss of worms, taking one year with another, amounted to from forty-five to fifty per cent. of all the worms hatched; and, what was still worse, the disease generally made its appearance after the greater portion of the expense of the rearing had been incurred. This evil has continued, from time beyond the reach of history, to within a year or two past. In the United States, all of us have heretofore considered our worms exempt from this fatal disease, it having generally been supposed not to exist here at all. This was a fatal delusion. I have just received from France a copy of the "Annales de la Société Sericicole, fondée en 1837, pour la propagation et l'amelioration de l'industrie de la soie en France," for 1837, 1838, and 1839, in one of the volumes of which I find a plate representing silk-worms in the various stages of the *muscardine*; the first glance at which showed me that it was the identical disease of which a great portion of the silk-worms in this country have perished. All who saw the disease last summer and have seen this plate identified it instantly. I shall endeavor to have translations made for the next number of the Silk Journal, and, if possible, shall accompany them with a copy of the plate, that all may read, see, and judge for themselves. In the mean time, however, I have thought it advisable to take this hasty notice of the fact, that all silk-growers may be enabled to apply the *preventive* and *remedy*. Happily, the remedy will do no harm, either to the healthy worms or those that may be affected with other diseases, and is cheap and easily applied. The remedy is a free application of *air-slaked lime* to the worms, and also to the floors of the cocoonery, and white-washing all the wood-work of the fixtures. The lime should be sifted through a fine sieve *on the worms*, two or three times a week if healthy, and once a day if diseased, in the morning before the first feeding, and after cleaning the hurdles. The quantity of lime to be sifted on the worms may be just sufficient to whiten the worms and leaves well; and it should be commenced when the worms are half-grown, say twelve to fifteen days old. This remedy has, during the past two years, enabled those persons in France who used it to save and obtain cocoons from ninety-seven per cent. of all the worms hatched.

Now that we *know* we have this formidable disease amongst us, it becomes necessary that the remedy should be applied; and, as there are very few, if any, who know the disease by sight, I would most earnestly recommend that the remedy be applied *in all cases*, whether the worms are sickly or not; for it is even more effectual as a *preventive* than as a remedy, and, as before stated, will do no harm to either healthy or sickly worms.

I consider it fortunate that this invaluable information has reached me at this particular moment, just in time to be of immense service to us in this our day of ordeal. Further particulars of the disease and the remedy will be published in the forthcoming and subsequent numbers of the Silk Journal. GIDEON B. SMITH,
Editor of the Silk Journal, Baltimore, Md.

ON THE DESTRUCTION OF SNAILS IN FLOWER GARDENS.

From the Southern Agriculturist.

Mr. Editor:—One of the greatest annoyances which I have experienced in the cultivation of flowers, has been from the depredations committed by that apparently insignificant insect, the snail. The last year they were uncommonly numerous, and many a beautiful flower which the owner prized much and was perhaps anxiously watching, was laid low by these night depredators, and many a garden which but for them would have been highly attractive, looked desolate and forlorn. I do not know whether I was more unfortunate than my acquaintances, but certainly

I had apparently four times as many as I had ever had before. I did not observe the depredations until late, having been so much engaged elsewhere as not to be able to visit the garden but for a moment, and at long intervals. When I did notice them, the mischief had been done, and they were in such myriads that I despaired of getting rid of them, and yielded up the possession of the garden.

This year I fear they will be as numerous, and, of course, as destructive as ever, if I may judge from the numbers which have already made their appearance in the garden. I have looked over my books, and find that it is recommended to destroy them by sprinkling lime over the beds, (which has an unsightly appearance,) or to water the beds *late in the evenings* with lime water. I have not tried either of these remedies as yet, but I have watered the beds with soap-suds, which is highly destructive to insects. What number there may have been, of killed and wounded, I know not, but certainly on those beds they are as numerous now as on those which were not so treated. Another method which is recommended and which I have tried with success, is to scatter cabbage or turnip leaves, or slices of potatoes or turnips over the beds. The snails, attracted by these, of which they are exceedingly fond, (and apparently more so when they become wiltered,) congregate there in great numbers, and in the mornings they will be found in quantities, which will surprise those who have not made the experiment, sheltered under the leaves, or covered with a little earth, so that they may be raked up with the hand like marbles, and what will add materially to the pleasure of the discovery, the adjacent plants will be found untouched by them. During the few warm days we had a short time since, they have come out in immense numbers, and my anemonies, ranunculuses and other bulbs being just up, I feared for them. As soon therefore as I discovered that the plants were breaking the ground, I scattered a few cabbage leaves over the beds, and I will mention for the satisfaction of all florists, that up to this time, I have not discovered a single plant cut by them on those beds where the leaves have been spread. Of the quantities which I have had to contend with, some opinion may be formed, when I mention the fact that one morning I gathered a five inch flower pot heaped up, from under five moderate sized leaves, in fact some were not more than half leaves. I had not time to go over the whole garden, but left it to the gardener whose business I have made it to gather them every morning, from under these vegetable traps. I have been so delighted with my success that I could not refrain from communicating it for publication in your journal, especially as I know several fine gardens were ruined the last season by these insects. I hope my friends and your readers generally may profit by the few remarks I have made, and by following the plan, (or any better one, if there be such, and of which I will esteem it a favor to be informed,) preserve their plants to beautify and adorn their gardens.

Before I conclude I will mention a remedy I have made use of against the common red ants. During the past winter my hot bed, and especially the pots containing plants, were infested with them, and I do believe there were near a dozen nests, in as many pots. The injury they did the plants was very great, uprooting the earth, and raising mounds in them. Several I had to re-pot, and found the bottom of the pots filled with ants and their eggs. When dislodged from one pot they took to another. After trying several remedies without effect, I watered them with soap suds, taken from the wash tub. A single watering entirely destroyed them and relieved me from this intolerable nuisance. AN AMATEUR.

Charleston, February 15th, 1841.

PORTRAITS AND PUFFS.

From the Kentucky Farmer.

We publish an article this week from the Farmer's Cabinet, under the above title.* We do not pretend to endorse the criticism of the article upon the special cuts commented upon, for we have no personal knowledge of the fidelity as representations of living animals. But, however this may be, the spirit of the article is just and well timed. It would seem that a rage for *fine pictures* has seized the country; and, judging from the extraordinary efforts, in various quarters, to gratify it, the mania is likely to do the agricultural interest more harm than that which prevailed for fine animals the substantial originals of the pretended pictures. We appreciate, at a high rate, the value and utility of *faithful* engravings; but they are a positive injury and fraud, if not correct. We have seen sundry portraits of animals which we happened to know, which were highly overdrawn—represented with every possible good point and not a solitary fault. From these pictures, it might be supposed that the practical art of breeding had been brought to the *ne plus ultra* of perfection; and that no further improvement in the breeds of domestic animals could be made. We are, however, despite these beautiful representations, of quite a different opinion. Perfection is not attained at a single jump; and years and years and ages and ages more of severe practical experiment will be necessary to effect the utmost attainable degree of improvement, not only in the breeds of animals but of many if not all the processes connected with a perfect system of agriculture.

There is a class of men in the country who seem to think that the conductors of agricultural papers have nothing to do but surrender their columns for the publication of the most extravagant pictures and puffs of "this, that and t'other" breed, animal and thing. Many of these productions contain some good hints and facts; but more of them are scarcely disguised advertisements of animals, &c. for sale at great prices. The spirit of these remarks will be understood by those "whom it concerns;" we hope we shall have no more to make. If we do, we shall choose some bilious moment, when our usual good digestion and good nature are disturbed, and "cut some things into hash."

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* The piece referred to has been already published in the Farmers' Register.—ED. F. R.

RESTRAINING SAND-DRIFT.

From the Edinburgh Quarterly Journal of Agriculture.

The most striking improvements have been effected in reclaiming sand-drifted lands upon Lord Palmerston's estate on the west coast of Ireland, between the towns of Ballyshannon and Sligo. This is an object of much general interest; and has been effected by a very simple process, introduced by Mr. John Lynch, his lordship's resident factor at Cliffony. The tract of sand-hills upon this estate extends to many hundred acres. After unsuccessful attempts, it occurred to Mr. Lynch to conduct the process of planting bent in this way. He took up portions of bent, *Arundo arenaria*, from the numerous tufts or patches of it with which these waste lands were interspersed, and carefully thinned out the plants into bunches of one and a half pound each, preserving the roots as carefully as possible. These bunches were put in flat or fan shaped in holes in the sand made of a rectangular form, and beaten down with the foot so firmly as a little boy could not remove them with one hand. These rectangular holes are found to be much better than round ones, inasmuch as, when the bent is inserted in thick round bunches, they are apt to rot in the holes, and the fanshape is more favorable for the bent throwing out its fibres among the sand. The plants are placed first on the side of the sandy ground next to the point from which the wind blows most prevalently, to arrest its drifting power over the rest of the ground. It may be that the drift may cover over the plants to the depth of two feet or more, in which case they will still penetrate through the sand; but it would be advisable to plant anew on the drifted surface until a fixed surface be established. The plants are put in at 2½ or 3 feet asunder. When Mr. Lynch undertook the planting, part of the ground had been previously planted in rows of 15 feet asunder and 4 feet apart in the line, which were found to be too wide either way; and had to be beat up with new plants, which created as much trouble as the planting of the whole ground anew.

In this way about 600 acres Irish, about 860 imperial, have been reclaimed, which now only require a little attention in replanting, in such places as have missed or which begin to blow. When the transplanted bent begins to *stool* or spread, it effectually checks the sand-drift, and the natural grasses came up in great profusion, such as white clover, bird's-foot, trefoil, &c. So well has this simple plan succeeded, that upon a tract of the land in the neighborhood of Mulloughmore which in 1829 would not have supported a *goat*, now grazes 112 cattle and 200 sheep. Before these operations were commenced, the land had begun to drift across the mail-coach road, and had nearly destroyed four of the town-lands in the estate, which by these means have been saved.

Mr. Lynch, in giving some directions for the use of an estate subject to sand-drift in Prussia, observes that bent seeds ripen about the latter end of July; that the bent should not be taken up till the latter end of September, and after that any time till the beginning of April; that it grows best when planted between the months of November and March inclusive. He remarks that the process of raising bent from the seed is tedious, as the plants will not be in a state for transplanting for three or four years. If the seeds are to be sown, it should be done in *clay* ground, mixed with sand from the sand-hills, and used in a greater proportion than the clay or nursery earth. He further states, that from one cut of bent he has obtained 49 bunches, with which he has planted a perch of land, and he allows about 8 tons in this way to the acre,—Irish acre we presume.

The bent should not be planted at first in the driest or blowing places, but in the more moist or firm spots. After a few years it will spread so much that, with the saving and sowing of the seeds, a stock will be afforded for extending the planting every year. This method has been followed for some time on Lord Palmerston's estate, at the rate of 200 acres per annum.

If the bent were to be sent over seas for transplanting, it is directed to be packed in moss or grass, or, if in great quantity, it may be laid in the ship's hold with wheat or barley straw between every two or three courses of the bent, and in this way it would retain its vegetative powers for four or five weeks, or longer, in proportion to the care taken in packing it.

It is well known to what extent the land has been wasted by sand-drift in the confines of the Bay of Biscay, particularly on either side of the embouchure of the Garronne. This, like a pestilence, swallowed thousands of square miles of the coast lands of France, insomuch that in the beginning of the last century it arrested the attention of government, and was ultimately stayed by one of its most eminent engineers, who, with the aid of troops of men, succeeded in planting a great belt of a particular kind of fir, *Pinus maritima major*, which has ever since checked the progress of the sand-drift, while it has clothed the sandy desert with wood highly useful for many purposes.

Lord Palmerston, impressed with the importance of this subject, has imported a considerable quantity of the cones of the *Pinus maritima major* from Bordeaux, which are now preparing in the nursery. Samples of the cones from France have also been presented to the Highland and Agricultural Society of Scotland. Even though this pine from the south of Europe may not fully answer expectations in our northern climate, it is confidently hoped that, by the patriotic exertions and example of Lord Palmerston, the extensive sand-drifts which are every where to be met with may be exchanged for grass lands or thriving wood of some sort.

The marran or sea-mat-weed, (*Arundo arenaria L. Ammophila arundinacea* of Host,) employed by Mr. Lynch, is the most frequent plant found in the sandy shores of England, Scotland, and Holland, and it is the best binder of sand-drift. The *Elymus arenarius* is perhaps the next best. The *Carex arenarius* the third best; and then the *Triticum junceum*, *Festuca rubra*, *Galium verum*, and *Trifolium repens*.

DECOMPOSITION OF BONES.

From the New England Farmer.

Mr. Putnam—Sir—On reading in your Farmer, of 17th February last, a Mr. Jones's very va-

luable experiments on bone manure, I was reminded of an idea I have often thought of, viz.: If some easy plan of decomposing bones without grinding could be adopted, so that every farmer could have the advantage of using all the bones he may collect about his own house and neighborhood, a great many bones that are now useless might be collected and become a very valuable source for manure Now, Mr Editor, in hopes some of your intelligent correspondents will give what information they can on the subject, I will give you what I know accidentally. My wife puts all her refuse bones into her ashes, thinking they may be of some use to her soap: she makes her soap every spring, and sometimes lets her leach stand six or eight months. On removing the ashes I have found nearly all the bones decomposed, or become, in appearance, like a white jelly.

In a report of the agriculture of the house of Industry at S. Boston, published in the Farmer of May 20th, 1840, it is stated, that mixing bone manure with earth as follows, one part bone and two parts earth, laid in a heap and moistened with cow-yard wash or water, and turned over often, the bones will become completely decomposed in about two months.

A MECHANIC.

SOOT AS MANURE.

From the Farmers' Journal.

Sir Humphrey Davy characterizes soot as "a powerful manure, possessing ammoniacal salt, empyreumatic oil, and charcoal, which is capable of being rendered soluble by the action of oxygen, or pure vital air; all which component parts rank high as nutritious or stimulant manures." On meadows (says an agriculturist) I have used soot with great advantage in substance, and, though sown by the hand, one dressing gave me always heavy crops of hay for two successive seasons; but this is a wasteful mode of applying it, a great proportion of its ammonia, one of its most active ingredients, being volatilized and dissipated in the atmosphere. When dissolved in water there is no waste; it is all available; and, for horticultural purposes, I have mostly used it in that state, mixing it up in the proportion of about six quarts of soot to a hogshead of water. Asparagus, peas, and a variety of other vegetables, I have manured with it, with as much effect as if I had used solid dung; but to plants in pots, particularly pines, I have found it admirably well adapted; when watered with it, they assume a deep healthy green and grow strong and luxuriant. I generally use it and clean water alternately, and always over head in summer; but, except for the purpose of cleansing, it might be used constantly with advantage.

ADVANTAGE OF PLANTING FRUIT TREES ON DECLIVITIES.

From the Farmers' Journal.

Dodart first observed that trees pushed their branches in a direction parallel to the surface of the earth. If a tree stands on a steep it pushes both towards the hill and towards the declivity; but on both sides it still preserves its branches parallel to the surface. As there is an attraction between the upper surface of leaves and light, I am also persuaded, though not equally certain of it from experiment, that there is an attraction of the same nature between the under surface of leaves and the surface of the earth. This I consider the true cause of the phenomenon;—I had long observed that the most fruitful orchards and most fertile trees are those planted on a declivity, and the steeper it is, though not quite a precipice, the more fertile they prove. It is well known that the spreading of trees always renders them fruitful. On a plain they incline to shoot upwards; and therefore art is employed by skilful gardeners, and applied in various ways, to check their perpendicular, and to promote their lateral growth. But this point is obtained on a declivity by nature. There a tree loses its tendency to shoot upwards, and in order to preserve its branches parallel with the surface, is constrained to put them in a lateral direction. Hence an important rule in the choice of orchards and fruit gardens.

D. J. WALKER.

DOGS*.

From the Edinburgh Quarterly Journal of Agriculture.

We are glad that the interesting subject of the natural history of dogs has been taken up by an individual so well qualified to handle it as Colonel Hamilton Smith. There is scarcely any other naturalist in Britain who has devoted so much attention to certain tribes of quadrupeds, particularly those more directly subservient to the interests of the human race. During his travels in many different quarters of the globe, he has availed himself of every opportunity of collecting information, and making drawings of rare species, whether found in a state of nature or preserved in museums. The collection of zoological drawings thus accumulated, is, we believe, one of the most extensive in the country; and the portion of them relating to the Canidæ (the dog and its allied species) has afforded the materials for the present volumes.

Colonel H. Smith enters at some length into the discussion of the difficult question relating to the origin of our domestic dogs; and comes to a somewhat different conclusion from many recent writers on the subject. It is well known that very different opinions have long been held by naturalists on this point. Linnæus included the whole of the domesticated kinds under the name of *Canis familiaris*; Buffon viewed the shepherd's dog as the original species from which all the others had sprung; Cuvier, in his *Regne Animal*, regards the species as distinct, remarking, at the same time, that the "taming of the dog is the most complete, the most useful, and the most singular conquest man has achieved, the whole species having become our property." A wild dog, named the Buansu (*Canis primævus*,) inhabiting the central region of the old world, whence many of our most ancient elements of

* Natural History of Dogs. By Lt. Col. Charles Hamilton Smith; forming the 25th and 26th vols. of the Naturalist's Library.

social existence seem to have emanated, has been pointed out as the primitive species of the whole canine race. A jackal (*Canis Anthus*, F. Cuv.) is shown by Professor Kretschmer to resemble so closely the antique carved and painted figures in the Egyptian temples, and a skull taken from the catacombs of Lycopolis, that there scarcely can be any doubt but that it is the type of the dogs of ancient Egypt. Mr. Bell, in his recent work on British Quadrupeds, advocates the claims of the wolf to be considered the progenitor of our domesticated races; and there are other modern writers who concur with him in this opinion. Colonel Hamilton Smith adduces numerous considerations in opposition to this view, and concludes by affirming his belief, that "There are sufficient data to doubt the opinion that the different races of domestic dogs are all sprung from one species, and, still more, that the wolf (*Canis lupus*) was the sole parent in question; on the contrary, we are inclined to lean, for the present, to the conjecture that several species, *aborigine*, constructed with faculties to intermix, including the wolf, the buansu, the anthus, the dingo, and the jackal, were parents of domestic dogs. That even the dhole or a thous may have been progenitors of the grayhound races; and that a lost, or undiscovered species, allied to *Canis tricolor* or *Hyæna venatica* of Burchell was the source of the short-muzzled and strong-jawed races of primitive mastiffs."—Vol. i. p. 104.

After considering the general structure of the canine family (co-extensive with the Linnæan genus *Canis*,) which is an extremely natural one, the osteology and whole anatomy of the species being surprisingly similar, the author first describes and figures the wolves, regarding which he supplies much accurate and interesting information. Lyciscan dogs (Gen. *Lyciscus*,) including the Prairietwolf of North America (*L. latrans*,) and the Caygotte of Mexico (*L. cagottis*,) as well as the red dogs (*Chryseus*,) next pass under our review. The latter group comprehends the dholes, the Pariah dog, and the New Holland dingo. The dingo occurs in a wild state all over Australia, but an inferior breed is partially tamed and occasionally used for hunting kangaroos and emus. These canines are entirely mute, neither howling, barking, nor growling. They do not run like dogs, but carry the head high, the ears erect and turned forward; and we are assured by Cunningham, that whenever domestic dogs fall into their power, they are immediately devoured. It has been usual to consider this and other diurnal canines similarly circumstanced, as feral dogs (*chien maron* of the French,) that is, dogs returned to a wild state after they or their progenitors had been domesticated. Col. Hamilton Smith is inclined to regard them as in their aboriginal condition, since they indicate no tendency to assume the distinctions to which, if they were descended from wolves or jackals, they must have returned.

After alluding to the various names by which jackals are domesticated in the east, the author gives the following account of their manners:—"They form a group of crepuscular and nocturnal canines, never voluntarily abroad before dusk, and then hunting for prey during the whole night; entering the streets of towns to seek for offals; robbing the hen-roosts, entering out-houses, examining doors and windows, feasting upon al dressed vegetables and ill-secured provisions, devouring all the carrion they find exposed, and digging their way into sepulchres that are not carefully protected against their activity and voraciousness; and, in the fruit season, in common with foxes, seeking the vineyards, and fattening upon grapes. They congregate in great numbers, sometimes as many as 200 being found together; and they howl so incessantly that the annoyance of their voices is the theme of numerous apologues and tales in the literature of Asia. Their cry is a melancholy sound, beginning the instant the sun sets, and never ceasing till after it has risen. The voice is uttered and responded to by all within hearing, in a concert of every possible tone, from a short hungry yelp to a prolonged crescendo cry, rising octavo above octavo in the shrillness, and mingled with dismal whinings, as of a human being in distress. Jackals retire to woody jungles and rocky situations, or skulk about solitary gardens, hide themselves in ruins, or burrow in large communities. If by chance one of the troop be attacked, all are on the watch, and, if practicable with self-preservation, issue forth to the rescue. The Indian wolf and hyæna occasionally avail themselves of their burrows, but while they occupy these retreats, they abstain from hostility with their neighbors. In the Moslem dominions they remain entirely unmolested, but in British India they are occasionally coursed with grayhounds, or hunted with fox-hounds, and having a strong scent, are readily run down, unless they can regain their earths, or mislead them in the jungles. Nevertheless, when at bay, the jackal fights so desperately, and his snap is so severe, that it is usual to have them destroyed by terriers. They unite the cunning of foxes, and the energy and combination distinguished in the best trained dogs, with a tenacity of purpose surpassing both. When overpowered by superior force, and resistance is vain, they affect to be slain, and be simulating death; but if they be thrown into the water while in this state, they swim immediately. They emit a very offensive smell, not totally obliterated even in a domestic state, when they have been fed for a considerable period on rice plantations, and other vegetables, as is usually the practice with the native Indians. Although, when in captivity, they know and will follow their master, they are far from being tractable, or to be depended upon. They associate readily with dogs, and hybrid offspring is not uncommon; nor is there a question that their mules are not again prolific."—Vol. i. p. 210, 212.

It was long a mistaken notion that the jackal was in the habit of preceding the lion or tiger, and by means of its superior powers of smell indicating the spot where prey was to be obtained. Had such been the fact, it would have formed a singular exception to the general rule, for nature appears to have implanted an innate hostility between the canine and feline tribes, which prevents them ever standing, while in a state of nature, in such friendly relations to each other. The truth is, that the jackal does not precede, but follows at a safe distance, evincing his hostility by continually pursuing lions and tigers during the night, and announcing their approach by a peculiar cry of warning, to which no other animal is heard to respond; while at other times, the cry of one is

answered in every direction, by all the individuals within hearing.

The greater part of the second volume of Colonel Smith's work is devoted to the dogs, properly so called, and contains an interesting history of all the more important breeds, including all the kinds with which we are so familiar. He likewise enters at some length into the consideration of the breeds as known to the ancients, a subject of somewhat difficult investigation, but full of interest, both as illustrating the changes which the various races have undergone, and as throwing light on many passages in the Greek and Roman classics.

As a specimen of this portion of the work, we subjoin the following extracts. "Of all carnivorous quadrupeds, dogs possess the greatest variety of modulations in their voices;* they bark, bay, howl, yelp, whine, cry, growl, and snarl, according to the emotions they feel. When encouraging each other in hunting, expressing the language of authority; in watchfulness, at distant noises, or displeasure at particular sounds, in pain or suffering, they have an expressive moan; a guttural or tremulous squeal, under impatience; a snarl, in anger; and a kind of shriek, when their passions are excited to ferocity. Who is there so little observant as not to know, almost by the sound of the first note, the peculiar bark of the drover and shepherd's dog, half intonated as the expression of delegated authority, and understood by the flock or the drove, the more earnest repetition when the first signal is disregarded, followed by the low and bluff sound, conveying a menace, and at length the sharp snarl, when he finds it necessary to enforce obedience, by running to the spot, and execute his orders with well-counterfeited anger; or, if disappointed, the half howling bay of lamentation at the failure? All these emotions are expressed in a language which marks the singular endowments bestowed by the Creator's fiat, for purposes that cannot well be mistaken, nor be studied without calling on our sympathy and affection. Dogs, likewise, express most significantly, by the voice, their desire to be admitted within doors, and still more in begging with perseverance; or, in resentment, when treated with contempt. They are jealous of their master's favor, quick in discovering the respectable, insolent to the poor, selfish in gormandising, tyrannical among their meaner inferiors, and fawning upon their superiors; injury they resent with the discretion and pertinacity of politicians."—Vol. ii. p. 83.

The sagacity of the canine species, their benevolent feelings, prescience of impending danger, instinctive comprehension of the nature of property, fidelity, &c. the author illustrates by numerous striking anecdotes, several of which had not before fallen under our observation. For these, we must refer to the volume itself. Under the head of "Pointer," we find the following remarks:—"In their present qualities of standing fixed and pointing to game, we see the result of a long course of severe training; and it is a curious fact, that, by a succession of generations having been constantly educated for this purpose, it has become almost innate, and young dogs of the true breed point with scarcely any instruction. This habit is so firm in some, that the late Mr. Gilpin is reported to have painted a brace of pointers while in the act, and that they stood an hour and a quarter without moving. These dogs were named Pluto and Juno, and were the property of Col. Thornton. Dash, another pointer belonging to the same sportsman, was sold for £160 worth of Burgundy and Champagne, one hogshead of claret, an elegant gun, and a pointer, with the proviso that if an accident should disable the dog, it was to be returned to the Colonel at the price of £50!"

* As a singular proof of this, we may mention the singular case communicated to the French Academy of Sciences, by the celebrated Leibnitz; of a dog that had been taught to modulate his voice, so as to be able to repeat intelligibly the words required to ask for coffee, tea, and chocolate!

ON A PRINCIPLE OF FENCING,

Formed according to the laws of vegetable physiology.

From the (London) Farmers' Magazine.

At a recent meeting of the Botanical Society of London, the following account was given by Mr. Daniel Cooper, the curator, of a mode of forming a fencework to plantations, &c., of a very economical and rustic kind, and which may be termed with all propriety a "*natural living fence.*" We are induced to give a full abstract of the communication, (from the first part of the society's proceedings,) as we think the suggestion might offer some points of interest to our country readers.

The natural living fence consists simply of planting for the purpose trees or shoots of the same species, or species of the same genus, or genera of the same natural family, and causing them to unite by means of the process of "*grafting by approach or inarching,*" a process well understood by gardeners and horticulturists. The fact having been briefly stated, it is necessary, in the next place, to enter more fully into an explanation of the plan to be adopted. In the first instance it is requisite to cultivate a portion of land, for the purpose of rearing the shoots intended for forming the fence. Those which I had the opportunity of observing (on the estate of Sir Thomas Neaves, Dagnam Park, Essex, constructed by his gardener and planter Mr. Breese) were formed of ash, but of course any other tree would similarly unite and answer the end required. The faster the tree grows, and produces new wood, the stronger and better the fence necessarily becomes. The shoots or small trees are run up (as termed by gardeners), and kept trimmed so as to produce stems as straight as possible. These are trained to the heights required, depending upon the intended height of the fence. As soon as they have acquired sufficient age they are carefully transplanted, a trench of two feet in width being previously made in the line of the intended fence, it being found necessary to surround the roots with earth of a richer nature than that usually met with, where fences are to be placed, such as the outskirts of wood, plantations, parks, &c. The trench having been made and prepared, the stems are then carefully removed; one set being

planted at the required distance, a foot for instance from each other, those we may suppose to slope to the north; the other set, for example, are planted sloping towards the south, at the same distance from the other, so that when the shoots proceed from the ground, they are in contact by their internal part.

The several stems having been thus arranged, the next and most important step is that of causing them to unite; this of course is requisite in order to produce strength, and is accomplished by the process of *grafting by approach*, or, what is the same thing, that of *inarching*. For this purpose it is necessary to remove a small plate of bark at the proper season, on each stem where their inner portions are in contact; this having been carefully performed, approximate the two stems, so that the denuded portions of each shall exactly meet; tie the stems together at these places, and keep them for a short time from the action of the atmosphere by means of a piece of clay. In the course of a few weeks, if these precautions have been attended to, adhesion takes place, and the result is, that a natural living fence has been formed, having openings of a diamond shape, which may be made of course of any size that may be required; it being only requisite to place the stems in the earth at a greater or less distance from each other.

The adhesion takes place in the following manner according to the laws of vegetable physiology. The plates of bark being removed on each stem, and the stems approximated to each other at that part, it follows that as the fluids raise in the stems of exogenous (outgrowing) trees, within the wood portion of the trunk and descend within the bark—that the stems being closely tied to each other, and kept at their point of union from the action of the air, the *cambium* (proper or elaborate juice) exudes, forms new wood, and the stems unite by the natural process.

The advantages which Mr. Cooper considers this kind of fencing to possess over that in ordinary use, are the following:—

1st. That it is rustic, and has not the hard and stiff appearance of the fencing made by carpenters.

2d. That so long as the trees of which it is formed are alive, it never requires to be in any way repaired, as living wood resists the action of the weather. The young shoots, should any spring forth, are to be removed by the pruning knife.

3d. That it may be carried to any height without additional expense, by training or running up the stems to the required height.

4th. That it acquires strength and thickness by the deposition of new wood annually; so that in the course of years, when the stems have acquired the greatest degree of thickness, and have obliterated the openings, in the first instance made, a complete solid living wall will be the result.

5th. That owing to the well-known durability and power of resisting the action of the weather on the bark, and external portions of living trees, a fence made on this plan does not require to be covered with tar, or any other preparations, requiring much time, labor, expense, and annoyance in the operation.

6th. That the first expense is the last, and is much cheaper also, in the first instance, than the ordinary kind of fencing employed, not requiring an annual expenditure to keep it in order; living wood, as before observed, withstanding the effects of the weather to a much greater extent than dead wood.

7th. That a fence to orchards may be formed of fruit trees of the same genus, or in the same natural family; the lower portions or stem of which form the fence, (and may be carried, as before observed, to the requisite height), whilst the upper part may be allowed to send forth its shoots and bear fruit.

8th. That owing to the open nature of this kind of fence (which openings may be formed of any size), shrubs and other plants usually planted close up to fencework, for the purpose of concealing it, will receive a larger proportion of air and light, so necessary to the growth of vegetables, which cannot be the case with the ordinary method of enclosing parks, &c., with palings.

9th. That should one of the bars by any cause become dead or destroyed, the circulation is carried on by the continuous bar or stems; so that if a bar dies it still remains in its situation, although it does not increase in thickness as takes place in those around it; this dead bar may then be compared as to durability, to the fencing until the present time formed of dead wood. From the well-known nature and structure of wood, I consider the application of the process of *grafting by approach*, or *inarching*, in the construction of fences of all descriptions, to be one of the leading improvements of late years made in the science of gardening: and as such should strongly recommend its adoption to those individuals possessing landed property, and also to the directors of railroads and other undertakings, where both man and cattle are intended to be kept off, and which might more effectually be accomplished by the judicious selection of stems armed with prickles, &c.

COMMENTS ON THE ARTICLES OF THE EDITOR ON THE EFFECTS OF GREEN-SAND AS MANURE,* [AT PP. 679, 690, VOL. VIII., AND P. 118, VOL. IX.]

To the Editor of the Farmers' Register.

Your last number of the Register, has "played the wild" with us Pamunkey farmers, or rather would-be farmers. Some short time since, you analyzed all of our marls, and told us they contained no lime, or so little as almost to be useless.

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* With this communication, there was received a box of specimens of green-sand marl, sent at our request, by Dr. Braxton, in consequence of the very strange result of the analysis of the specimen of marl, supposed to be that which he used (from G. W. Bassett's land,) and which we found to contain but 11 per cent. of carbonate of lime. This result was reported, (at pages 683, 689, vol. 8,) with Dr. Braxton's answers to our queries; but at the same time, we intimated the strong suspicion that a wrong specimen had been sent us by mistake. We therefore asked for more specimens, and also, that Dr. Braxton would himself analyze the marl in regard to which a mistake was suspected. He has complied with both requests,

We then consoled ourselves, that what they lacked in lime, they made up in green-sand, or may be, the happy compound of lime, green-sand, &c., whatever it may be, formed a happy dose for our sandy bottoms, or flats. But you now come out and tell us, that the green-sand is worse than useless. Now, my dear sir, what are we to do? Our lands dreadfully poor, no lime, (which is the only thing, as you say, that can benefit them,) and our green-sand, of which there is plenty, you say is good for nothing.* I very much fear that, in your "search after truth," you will leave depopulated a large section of our country; for I already hear some rumors of the return of the epidemic which prevailed in this region some years since, with such alarming mortality, both in body and purse, that I have scarcely known of an individual who was subject to the malady, that ever finally recovered. I think the physicians called it the emigrating fever. As you are our great land "regulator," you must pardon me in again asking you what we are to do? for without this marl, or some substitute, we are gone; not going, but gone, and as you say we have none that is worth using, what would you advise us to do? go to the hospital, and be inoculated for the fever, or stay a while longer, and try some more experiments with this green-sand? But from your experience, it seems the longer the trial, the worse the effects; so, Mr. Editor, I can see no glimmering of hope for us Pamunkeyites, but the very faint one, that your green-sand may not be like ours, that is, that ours may have some ingredient in it, which is wanting in yours, or, may be, our sandy lands may not labor under the same disease with your stiffer soils, and therefore the same remedy, perhaps, that may have been inert upon your lands, may be beneficial. And may not that be the reason why the green-sand acts so well as is said on the sandy soil of New Jersey, and not at all on the James river lands?†

And now, my very good friend, *badinage* apart, let us try and reason this matter a little together, and compare your ideas and experience with mine; not at all though with the view of contrasting my knowledge or experience upon the subject with yours, but simply that both sides of the subject may be presented, as far as my limited experience goes.

With the green-sand proper, I readily admit that my experiments have not been of such a character as to arrive at any thing like definite or fair conclusions; but with the green-sand marl, (the admixture of lime and green-sand,) I claim to have had some experience; and whatever may be its component parts, whether it contains much or little lime, or whatever else it may contain, certain it is, so far as I can judge, its present effects are very fine; whether it may prove

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and the results show that there *was* a mistake in the former specimen, and that the marl which he has used is about four times as rich in calcareous matter as the specimen which we before analyzed. He analyzed by solution in acid, filtration, and subtraction of the undissolved residuum from the whole quantity—which mode will always make marl appear richer than it really is. We used Davy's apparatus (for the measurement of the gas evolved,) which is much more accurate. The results were as follow:

Bassett's marl, used by Dr. Braxton, and by his analysis, contained of carbonate of lime, 48 per cent.
The same, according to Davy's apparatus, - - - - - 45.50.
The lower stratum, of the Newcastle green-sand marl, (formerly reported by us, p. 688 vol. 8, as containing 2 per cent,) by Dr. Braxton's trial contained, - - - - 5.
And by Davy's apparatus, - - 2.50.

This stratum, it should be remembered, is the lower, and the one lying above it, 5 feet thick, contains 36 per cent. of carbonate of lime.

Another specimen from Bassett's land, contained only 11.50 per cent. of carbonate of lime. This, from its near agreement, was no doubt the same kind of which a specimen was before furnished by mistake, instead of the kind which Dr. Braxton used from.

All three of these specimens contained large proportions of green-sand also—estimated by the eye to be from 20 to 30 per cent. of the whole mass.—Ed. F. Register.

* Not so, in either case. We reported, and correctly, the marl sent as a specimen of the kind used so largely by Dr. Braxton, to be only 11 per cent. of carbonate of lime. It now appears (as stated in the preceding note) to be *rich*, as we at first had supposed, containing 45.50 instead of only 11 per cent. As to the "happy compound of lime and green-sand," we readily admitted the manifest and very remarkable effects, as seen on the Pamunkey lands. We only distrusted the permanency of so much of the effect as was due to green-sand alone, from our own varied and considerable course of trial elsewhere. The results of those trials we have fully and fairly presented, (p. 118, vol. ix.) and desire others to do the like; and, so far from designing to discourage farther trials of green-sand, because of our own small returns, we have urged renewed trials, even where we had abandoned the use, in consequence of the greater benefits which we saw on the Pamunkey lands. Still, there has been nothing adduced to show that we were wrong in pronouncing that the green-sand *alone*, without any admixture of carbonate of lime, and applied to an acid soil, would be an unprofitable application, if not entirely without effect.—Ed.

† We should greatly regret such results of our investigations and reports; still, whatever may come of it, we will still aim to "search after truth," and urge all other investigators to do the same; and not to trust to our opinions, or any others, or to seek to sustain any particular theory, but submit every doubt to the test of accurate experiment. Our green-sand was no doubt generally poor; but the quantity would have made up for defect of quality. Besides, some of it was abundantly rich. Neither were the lands generally stiff, but in most cases light and sandy, though less so than the Pamunkey low-grounds.—Ed.

permanent manure, time must decide. Although I think your reasoning upon calcareous manures conclusive, I would fain hope they may not be found so as respects green-sand. That is a subject as yet, I think, but little understood by farmers, geologists, or chemists, as it would seem, at least in our country. Its effects we know but little of; of its constituent character nothing. It is true, Professor Rogers tells us it is the "silicate of iron, and potash." We poor farmers are perhaps now as wise as we were before; but if the professor means to say, it is sand, iron, and potash in a state of combination, I should think that those materials would form an insoluble, semi-transparent, vitreous compound, which the oxalic, humic, and all other acids, said to be contained in the earth, would hardly decompose. But to return. I cannot agree with you, that the effect of green-sand is only that of gypsum. I think so, first, because gypsum acts only on the clover, and other broad-leafed plants, giving at first, to be sure, an impetus to some of the grains, but no increase to the crop that I could ever discover; whereas the green-sand not only produces a greater effect upon clover, but all other grasses, as I have seen a growth of hen's grass converted, by its appplication, into luxuriant white clover and green-sward, as well as weeds of every description quadrupled in size; and land that I am satisfied would not have produced more than 2 barrels of corn to the acre, by its application alone, now produce 4 or 5. Now in this I cannot agree, that it is the overdose of the gypseous matter that produces these effects; as I have never seen any better effects produced from any larger quantity of plaster than one bushel to the acre. Not so the green-sand; the larger the quantity I have yet applied, or seen applied, the better the effects. 2d, I have never seen gypsum have any effect in neutralizing an acid soil, whereas after the application of a sufficiency of green-sand the sorrel ceases to grow. And 3dly, I have never seen any change in the appearance of the soil itself, produced by any application of gypsum, whatever, much or little, and I have been in the habit of using it for the last 15 years pretty freely; neither have I seen any permanent improvement of the land by its use, its beneficial effects seeming, on our soils, always to have passed off with the effects of the clover, like any kind of putrescent manure on acid soils. Whereas, after the application of *our* green-sand, there is a manifest change in the appearance of the soil, and a continued fertility imparted thereto, as is evidenced by the growth of every thing on it, whether it be of grain, grass, or weeds.* How long this increased fertility may continue is yet to be determined; but as "sufficient for the day is the evil thereof," I should recommend its continuance until its useless, or pernicions effects are more manifest than I have yet seen them. Now, in the case of my brother Carter's field at Newcastle, there was as much green-sand as green-sand marl applied, the land seemingly of equal quality, and yet there appeared to be no difference in the crop of corn; all seemed equally good, at least 100 per cent. upon what the land would have produced without it.† What may be the chemical action produced on soils, or vegetation, by the combination of lime and green-sand, I am not agricultural chemist enough to determine. But from your analysis of my marl, or rather the marl I am using, I should not suppose there was lime or green-sand enough to do much good; but still the effect, as it appears to me, has been very great on my land.‡ It may perhaps be proper that I should here remark, that the happiest effects I have witnessed from the application of green-sand, was on a piece of land that had been previously marled, with a poor marl, which to the eye had not given much indication of improvement. But as soon as the green-sand (pure) was applied, a new appearance was produced; the white clover, and patches of green-sward began every where to make their appearance. This piece of land was very light and sandy, with a gravelly subsoil, and not capable, before it was improved, I should suppose, of producing more than 2 to 2½ barrels of corn to the acre. Last year it was in corn, and produced at least 8 or 9 barrels, (my overseer says 10) the adjoining land, in another field of originally similar soil, did not produce 1½ barrels to the acre. In the absence of all chemical knowledge on the subject of green-sand, (as I consider we know nothing of it analytically, and as the eye, and its effects, are all we have to direct us in its use,) I must think the deposite from which Mr. Williams Carter made his experiment is not of the same character as what we call green-sand lower down the river; as in his, if I recollect aright, there are no shells at all, whether of a large or small kind, whereas, in the deposites found lower down the river, and above too, for aught I know, there are always more or less of small shells, and interspersed occasionally are found larger ones, of a peculiar character, as well as the saddle oyster shell; neither of which shells have I ever seen or heard of, except in connexion with green-sand. And neither have I ever seen the green-sand where these peculiar shells did not more or less obtain. And if your gypseous earth is like the banks I have noticed at City Point, (with entire deference to your better knowledge, and more ac-

* We did not, in our recent articles, (p. 679, vol. viii. p. 118, vol. ix.) ascribe the effects of green-sand earth to the gypsum contained, (though that was our error, twenty years ago,) and still less did we mean that green-sand and gypsum were the same. We only maintained that the manner of action of the two was similar, though we readily admit the greater effect of the green-sand. We have found the effect of gypsum to increase with the quantity applied, from one bushel to four to the acre; but not in equal proportion.

† The great improvement on Mr. Carter Braxton's land, from the use of green-sand earth containing only 2 or 2½ per cent. of carbonate of lime, and the apparently equal and similar effect with the upper stratum containing 36 per cent. of carbonate of lime, we confess to be to us astonishing and inexplicable. But still the facts do not yet contradict our views; though they will do so, should the effects of the lower stratum be found to be permanent.

‡ This was written while supposing the marl to be as poor as 11 per cent. The force of the objection is removed by the subsequent analysis, showing 45.50 to be the degree of strength, in carbonate of lime.

curate and scientific investigations of these deposites,) I must think your gypseous earth is still more variant from our green-sand, than Mr. Carter's. Again—Prof. Rogers in his report particularly guards us against taking any thing for green-sand which has no shelly matter in it, and moreover I think says the green-sand has never been found in this country when the saddle oyster shell was not present.* Now I am rather confident I saw no shell of any kind, particularly of the latter, at Broad Neck, or at City Point. There are several, and I dare say many of the deposites on this river, or its vicinity, such as you describe in your writings as gypseous earth, with the clear and distinct impress of shells, but all traces of calcareous matter gone. That these deposites were once calcareous, I suppose can admit of no doubt, and, for aught we know, the green-sand deposites may have been much more calcareous than they are at present; and may now be undergoing the decomposing process; but certain it is to my mind, that there must have been some other ingredient in the green-sand deposites, than there is in the now gypseous earth deposites, as a different result has been produced by the decomposition; as it would seem there is a marked difference between the deposites found here, one of which is called green-sand, and the other gypseous earth. Again, if your reasoning be correct, in the theory lately advanced by you, that the sulphate of iron, in percolating through the different strata of calcareous matter, has decomposed the lime, or rather, that the sulphuric acid, from its greater affinity to lime than iron, has produced the more insoluble compound of sulphate of lime, or gypsum, why is it, that we only find the gypsum, in the upper or overlying stratum of green-sand, and that we still find the two together in a separate state, the gypsum in crystals, and the green-sand a distinct substance, or rather the crystals of gypsum sometimes as large as a pigeon's egg, intermixed here and there, throughout the stratum of green-sand? This green-sand being weaker, that is, containing less green-sand, and a lighter colored earth than the green-sand of the lower stratum, and between this overlying stratum of green-sand, containing the gypsum, and the underlying stratum of richer green-sand, but containing no gypsum, as can be ascertained by analysis, there should be a vein or stratum of rich green-sand marl, containing sometimes as much as 40 per cent of lime. If it decomposed the upper, or overlying stratum of what was once as you suppose a body of marl, or calcareous matter, why did it not convert all into gypsum, and how did it pass the inter-

* We readily admit the general inferiority of the green-sand earth with which we experimented. And it was so, not because there was not plenty of richer, but because we first sought, not for the green-sand ingredient, but for the greatest quantity of gypsum. But even if poor, enough of the earth was put on to make a very heavy and rich dressing of green-sand. And some of our applications were from the lower and much richer body, (and which also contains shells,) pronounced by Prof. Rogers, (for whose inspection the pit was dug,) to contain 60 to 70 per cent. of pure green-sand—and which also produced no lasting effect. The saddle-shaped oyster shell (*ostræa selliformis) is* found in some of our green-sand; and at Evergreen, (Prince George,) where I first discovered the formation of green-sand in 1817, and where I afterwards carried Professor Rogers, (in 1835) we gathered the finest and most perfect shells of this kind he had ever seen. Indeed, he then thought this shell to be an unknown species; and under that mistaken impression, at his request, I obtained for him beautiful drawings of two fine specimens, for the purpose of being engraved, which were executed by a friend of mine. The same shell is very abundant in the eocene marl at Coggins' Point, which lies over the green-sand, and which green-sand is manifestly changed from what was formerly the same kind of marl. *How* the change was produced is a mystery—and we admit, as our friend's comment, afterwards made, intimates, that our speculations thereupon are of very little, if any value.

The green-sand stratum at City Point, like most that we formerly tried at Coggins' Point, *does* differ in appearance, in constitution, and would very likely differ in effect as manure, from that at Newcastle, which is the nearest to a pure green-sand of any that has been profitably used there, containing no more than 2 or 2.50 per cent. of carbonate of lime. The City Point stratum contains no shells, but plenty of their empty impressions, and apparently no carbonate of lime. But however different, in some respects, from the Pamunkey beds, (and from our lower stratum,) this stratum, like *all* that we used from, has plenty of *green-sand*; therefore, if it be contended (and we are not disposed to deny it,) that this and our own Coggins' Point green-sand earth cannot produce effects as manure equal to those produced by the Pamunkey and New Jersey earths called by the same name, it will follow necessarily that there is some agent of fertilization other than. and superior to, the green-sand itself, and whose presence has not been detected by any scientific investigator. If this be true, it would remove all existing difficulties caused by discordant effects of the (supposed) same agent; for then there would be no reason why the green-sand beds of New Jersey, and of Pamunkey, if having this unknown fertilizing ingredient, should not be every thing that that the report of the state geologist promises for green-sand in general, and yet the James river beds be worth as little as *we* had inferred, because, though rich enough in green-sand, destitute of that other and unknown ingredient. But if this be so, it takes away the merit as well as the mystery from green-sand. to bestow both on this newly suspected and still unknown agent.

In conclusion, we agree with our friend and correspondent, that almost nothing is yet known on the subject of green-sand; and we would urge upon all farmers who are able to use it, to do so, in the manner best suited to make full experiment, and furnish useful results—and to throw aside as worse than worthless, all that has been yet said of this manure in geological reports, and to rely only on what are supposed to be facts, and the results of practical experience.—Ed. F. R.

mediate, or middle stratum, which is now rich with calcareous matter, and pass to the lower stratum, the terminus of which we have never found, decompose this partially, (as there are still many shells in it, perfect as to form, and retaining all their lime,) but still no traces of sulphate of lime, other than as you suppose from a similarity of action on the growing crops? If I am correct in my views, as I think I am, I should rather think you will have to dip still deeper into the arcana of nature, than you have yet gone, before any satisfactory solution of the enigma of green-sand can be arrived at. I do not know but that you may be correct in your theory, or at least that it is a plausible one, of the sulphate of alumina and iron, acting partially upon the lime of the upper or overlying stratum of green-sand marl, as the sulphuric acid would in all probability, when coming in contact with lime and potash together, unite with the lime, in preference to the potash, and thereby produce the insoluble compound of sulphate of lime; and should any excess of sulphuric acid be present, and sulphate of potash be formed, it could not be detected, as it would, as soon as formed, be carried off by the water. But this admission can only apply to the upper or overlying stratum, in which is found gypsum; it could not apply to the two underlying strata, which both contain lime, but no gypsum.

The more, my dear sir, I investigate this subject, and seek after the *modus operandi* of the green-sand, the more I am involved in mystery. "Alps on Alps arise," at every step. I must therefore withdraw from the field of science, and leave it to the culture of your more skilful operations; while I confine myself within the more appropriate vocation of a farmer, of trying experiments, to arrive at practical results. Yours, &c.

CORBIN BRAXTON.

PROPOSED REMEDY FOR THE CONFUSED AND CONTRADICTORY STATE OF POPULAR NOMENCLATURE OF THE GRASSES.

From the Kentucky Farmer.

In a communication addressed by the present editor of this paper, some months since, to the editor of the Farmers' Register, on "Kentucky blue grass," the idea was suggested that a work on the grasses, giving all their common names in connexion with their botanic description, so that they could be readily distinguished in all parts of the country, as well by the unlearned as the learned, would prove a valuable acquisition to the agricultural literature of the country. The letter was copied from the Register into this paper, current vol., p. 156. It is highly gratifying to find, from the articles which follow, that the suggestion receives the powerful support of the able editor of the Register, and that it has been so favorably entertained by the distinguished botanists, Mr. Curtis and Professor Darlington, who have written to the Register and the American Farmer on the subject. Every intelligent farmer appreciates the importance of botanic science to the improvement of agriculture; and it is painful to reflect how much this and other sciences, applicable to the art of farming, have been neglected in the education of the sons of the soil. May we not hope that, appreciating the utility of the various sciences in aid of practical husbandry, a higher standard of education for the farmer will be soon adopted. And such a work as the one proposed, by showing the utility of botany, would promote the study of that beautiful science by the farmer.

There are some excellent suggestions in the letter of Mr. Curtis; and that of Mr. Darlington may be regarded as a nucleus around which the useful work suggested will be formed. We hope that, in furnishing the materials for such a work, the Kentucky botanists will not be behind their scientific brethren of other regions of the country. Professor Short of Louisville and Professor Mitchell of Lexington, could give much assistance in perfecting the proposed work; and our highly valued correspondent, Mr. Lewis, whose letter, giving another plant to the list of Professor Darlington, is appended, could, and no doubt would, furnish much useful matter. Aid could also be derived from many other gentlemen of Kentucky, one of whom, our able correspondent, Judge Beatty, we almost feel authorized to pledge. We hope the scientific gentlemen named, as well as others, will send us not only specimens of the various grasses of this state, prepared as suggested, but communications for publication. We will take great pleasure in forwarding them to Mr. Curtis or to any other gentleman who will undertake the preparation of the projected work. By the way, it occurs that, as Mr. Ruffin of the Register proposes that the specimens be sent to Mr. Curtis, and Mr. Curtis proposes that they be sent to Mr. Ruffin, (Petersburg, Va.) it would be important that the latter gentleman, in behalf of the cause of American agriculture, enter into a correspondence with the most distinguished botanists of the United States, to solicit their aid in the undertaking, and to designate the one who shall finally complete the work from the materials to be furnished. Mr. Curtis has agreed to do it if the specimens be sent him, and no one else undertakes. No doubt he could well perform the task; and if he *absolutely* agree to do it, the public should be apprised, that specimens may be sent directly to him. Let, therefore, general notice be given in the Register and copied in all other agricultural papers. As, among other objects, the work is desired to establish a uniform nomenclature, some such action will be requisite, to render the undertaking successful; and it is to be hoped that every botanist in the country will hold himself bound to do something in this enterprise, not only as a contribution to the science of botany, but as a concession to the claims of agriculture. Mr. Ruffin's high character as an agricultural writer, his extensive acquaintance, his fortunate location at a point midway between the extreme north and south, together with his energy and spirit in promoting the interests of agriculture, all indicate him as the person peculiarly fitted to organize the action which shall ultimately accomplish the desired object. In the hope that he will recognize our right to make the nomination, and that he will accept it, we undertake to guaranty him all the aid which the Kentucky botanists can bestow. We believe the plan proposed will *insure* the execution of the work; while if no organized system of action be adopted, we may never see its completion and certainly

never in the perfect form so desirable for a work of its contemplated character. What say you, Mr. Ruffin? Let us hear through the Register. A botanic work on the grasses alone would make a useful volume; and if this attempt succeed well, the same kind of exertion would ultimately furnish the community with practical information on all other branches of botany.

In answer to the above call upon us by our highly esteemed brother editor, we repeat our readiness to do any thing in our power to further the important object in view. We had no intention of shifting from ourself any trouble, when recommending to those who could do so as conveniently, to send specimens at once to Mr. Curtis; but because of the few opportunities for conveyance from this place to his residence. However, the communication from Mr. Curtis, which will follow, serves to remove much of the supposed difficulties of transportation, as well as furnishing ample instruction for the preservation of specimens of grasses. We trust that enough farmers, or countrymen, who are practical and careful observers, will collect specimens in the manner directed, and with these furnish the common names of each, and every name known. The service will be still more valuable if they will also furnish statements of the agricultural characters, habits, and advantages or disadvantages of each grass, as far as known. We shall do something in this respect, so far as our present unfavorable location will permit. This part of the service can be even *better* performed by mere farmers, who are generally quite ignorant of botany, than by scientific botanists of the highest and best deserved reputation; because the former class know more or less of the agricultural characters of grasses, and of their vulgar provincial names, of which scientific men could not be generally or extensively informed. But when a practical cultivator, who has these advantages of his occupation, adds to them even but a slight acquaintance with the botanical characters, and is thereby enabled to class and identify grasses, he may do much more than others for the object in view. There are probably many such among our readers, without including any but such as would disclaim all pretensions to call themselves botanists. Among such countrymen and practical cultivators (formerly or now) we will name, (as they are nearest at hand, and best known to us,) Dr. Gideon B. Smith of Baltimore, T. S. Pleasants of Chesterfield, and A. Nicol, of Sandy Point, and to all of whom the readers of the Farmers' Register have been indebted for information on botanical as well as more frequently on other subjects. Besides these, and such as these, there are other of our valued contributors, for example, David Thomas, of New York, Professor Armstrong, of Washington College, Virginia, Dr. James F. McRee of North Carolina, and M. Tuomey, esq., of Loudoun, Virginia, all of whom possess much botanical knowledge, and could, in their different localities, render excellent service to the end in view. We then wish of all named, and of any others who may be inclined to aid the object, to do something towards it. We offer to be the recipient both of communications and specimens, when most convenient to the sender; and if there is proper action on the subject, there will be collected materials, before this year is ended, for Mr. Curtis to digest into a full and satisfactory botanical and agricultural description of our common grasses, with their synonymes. And by this, more light may be afforded on the subject, and more service rendered to practical agriculture, than by every thing on grasses that has yet been before the public.—Ed. F. Register.

DIRECTIONS FOR COLLECTING AND PRESERVING SPECIMENS OF GRASSES.

To the Editor of the Farmers' Register.

Washington, N. C., March 8th, 1841.

Dear Sir:—I now send you, as promised, the mode of collecting and preserving specimens of grasses.

1st. As to the time of collecting. This should be when the flowers are fully grown, but before they begin to fall off. If any one is in doubt as to what are the flowers of grasses, the easiest way to inform him is to say, that whatever is not stem or leaves will be the flowers. They have a great variety of forms, but the above rule will readily determine them.

2d. The whole plant should be collected, not excepting the root, though the dirt should be entirely removed. Of the large coarse grasses that attain a height of three to five feet or more, a foot or two of the summit will answer. Plants should never be collected when wet.

3d. Take half a newspaper and fold it once, like a sheet of cap or letter paper; then place within it as many plants as there is room for without their overlaying each other.* Thus do with as many plants as are collected.

Now lay these sheets between other newspapers (called driers) alternately over each other; that is, first a drier, then a sheet with the plants in it, then a drier again, and so on, no matter how large the pile.

The parcel should now be put under a pressure of from fifty to a hundred pounds and remain for about twelve hours, when the driers should be removed and *dry ones* put in their places. Three days will be sufficient for drying grasses, changing as above every twelve hours. For a press, a piece of board large enough to cover the paper

* If the plant be longer than the sheet, it may be bent over, or broken, though not severed.

might be used, with a rock, some large books, or a heavy trunk, for a weight.

When the plants have been thus dried, they can be put away in dry papers, enclosed in a newspaper and tied round, so that they may not be injured by being broken or tossed about. They should be put away in a drawer where they will not suffer from careless handling.

4th. In transporting them care should be taken that they get no injury from rubbing, which will happen if they are loose. They should therefore be packed tight enough to avoid that. When carefully tied up or sealed, they can be conveyed to any distance in a trunk by private conveyance; or in a small box made to the size of the parcel may be sent by any of the ordinary public conveyances. Boxes of plants are yearly traversing the country in this way.

If the work you have put upon me is worth doing, it is worth doing well; but this cannot be attained without the aid of those who are more particularly interested in it. I hope therefore, that no one will leave for somebody else to do what he can so easily do himself. The grasses within the reach of any one man, the names of which he is acquainted with, are not very numerous, and the trouble of preparing two or three specimens of each will be trifling. It must be the agriculturists who will do the work of furnishing the common names, for botanists are generally professional men who are very imperfectly acquainted with them. I will however draw upon them personally for their knowledge, if you will secure the labors of the farmer in this work.

If it will furnish any new inducement to the agriculturist to engage in the plan, I will promise to return him his plants, if desired, *properly named*, so that he may have specimens in hand to refer to in cases of doubt. Very respectfully, yours, &c., M. A. CURTIS.

ESTABLISHMENT OF A BOARD OF AGRICULTURE BY THE GOVERNMENT OF VIRGINIA.

[Just before our last number was completed we learned from the newspapers that an act had passed the legislature to establish a Board of Agriculture. It was not until some time after, that we learned the provisions of the enactment, and obtained a copy of the law, which will be presented below. Though we have, at former times, labored zealously to obtain from the legislature this one boon to the agriculture of Virginia, even if nothing else were done, we had abandoned all such efforts in despair; and though a bill for the purpose has ever since been annually brought forward, we have had no participation in the matter; nor did we know that it was before the legislature this session, until we read of its passage by the lower house.

We hope that even this poor and feeble beginning may do some good, and lead ultimately to much good to agriculture; but the means are poor indeed, while the objects and duties of the board (as stated) are very burdensome and difficult, not to say impossible for such a body even to approach in performance. It would be both unreasonable and foolish to expect much from a board thus constituted, and its existence *barely tolerated* by the government, instead of being encouraged, sustained and aided in its course, and the pursuit of the designed ends. We foresee that they who have all along opposed all such measures for the improvement of agriculture, will be ready to cry out upon the inevitably feeble operation, as proof of the uselessness of this board, and pronounce the expediency of its being suppressed as worthless. The objection which will be most strongly felt by individuals to acting on this board, will not be the laboring without any pecuniary reward, or the opportunity to acquire some honor by rendering the service required, but that they will probably even lose reputation, by the impossibility of doing scarcely any thing of their arranged and expected duties. However, let us hope for the best results—and among them, that proper members may be found who will be willing to risk loss of credit to themselves, added to the certain sacrifice of much labor, and that with but small prospect of rendering any important service to their country, or effecting much for the object of their association.—ED.]

An act to establish a Board of Agriculture.

Whereas, it is represented to the General Assembly of Virginia, that the agricultural community have various interests, requiring the fostering care of the state, which should be extended to them according to some system approved by observation and regulated by experience. And whereas it appears to the General Assembly that these ends would be promoted by the establishment of a Board whose duty it should be to present to the Legislature from time to time a general view of the agricultural statistics of the commonwealth—to inform the public of the progress of improvement—to communicate such facts, as when collected and digested, may promote the agricultural interests of the state: and to suggest such measures for the adoption of the General Assembly, as the aforesaid board may deem proper for the developement of the resources, and the protection and advancement of that important branch of industry in the commonwealth;

Be it therefore enacted, That a board, to be called a "Board of Agriculture," shall hereafter be constituted, to consist of eight members, to be appointed triennially by the executive of this commonwealth; of whom two shall be selected from each of the four divisions of the state, as specified in the second section of the third article of the constitution, for the apportionment of representation in the House of Delegates; any three of whom may constitute a quorum for the transaction of business.

Be it further enacted, That it shall be the duty of said board to present annually to the legislature a general view of the condition of agricul-

ture in the state :—to report the nature and quantity of the agricultural staples, so far as they may be able to ascertain the same: to collect and digest such facts in relation to the improvement and cultivation of the soil, and the best modes of preparing its various products for their appropriate uses, as they may think would afford useful information to the agricultural community—to report, so far as they may ascertain the same, the relative degrees of encouragement afforded by the state of foreign and domestic markets to the various agricultural productions of this commonwealth, and to suggest to the legislature such measures as they may deem desirable for the developement of the resources, and the promotion of the general interests of agriculture in this commonwealth.

And be it further enacted, That it shall be the duty of said board to hold one session in each year, at such time and place as may be fixed upon by the board, with the consent of the executive.

This act shall be in force from the passage thereof.

PREMIUMS OFFERED BY THE HENRICO AGRICULTURAL AND HORTICULTURAL SOCIETY.

(Published by request of the Executive Committee.)

At a meeting of the Executive Committee of the Henrico Agricultural and Horticultural Society, on the 27th day of March, 1841, the following were determined upon as the subjects for and amounts of the Premiums to be awarded at the first exhibition of the Society, which will be held on Wednesday, the 26th day of May next, instead of the time heretofore reported, viz :

1st. For the best horse or colt, calculated to produce the best stock for the draught or saddle - - $15
2. For the best brood mare do. - - 10
3. For the best jack - - - - - 15
4. For the best bull for domestic purposes 10
5. For the best milch cow - - - 10
6. For the best yoke of oxen - - 10
7. For the best boar of improved breed - 15
8. For the best brood sow, to be exhibited if practicable with her litter of pigs 10
9. For the best specimen of fruits, the production of the exhibitor—a fruit basket of the value of - - - 10
10. For the best specimen of rare and beautiful plants or flowers—a silver bouquet holder of the value of - 10
11. For the best specimen of vegetables 15
12. For the best cultivated market garden, not less than one acre—a set of garden tools of the value of 15
13. For the best specimen of domestic wine, the production of the exhibitor - - - - - 10
14. For the best specimen of domestic silk not less than one pound, the production of the exhibitor - - 10
15. For the best specimen of butter not less than 5 pounds—a silver cream pot of the value of - - - 10
16. For the best suit of clothes of Virginia manufacture, the premium to be given to the producer of the material of which the clothes are made $15
17. For the best specimen of agricultural implements, including cutting machines, corn-shellers, &c. - - 15

The committee have not felt themselves warranted in offering higher premiums at this time, but will increase and enlarge the subjects as the funds of the society may enable them to do.

They deem it proper to give notice, that at the fall exhibition the following additional premiums will be given, and that they will be as large as shall be practicable, to wit :

For the best cultivated farm.

For the best field of corn, not less than 5 acres.

For the best crop of turnips, beets, carrots, parsnips, sweet or Irish potatoes, not less than half an acre of each.

For the best piece of domestic carpeting, not less than 20 yards.

For the best hearth rug.

For the best table cloth.

For the best counterpane, bed-quilt or comfort.

And for other articles of household industry.

The members who have not subscribed to the constitution, and the citizens generally, will be called upon by some member of the society to enable them to become members.

JESSE H. TURNER,
TH. S. DICKEN,
RICH. G. HADEN,
WM. H. RICHARDSON,
JOSEPH RENNIE,
WM. D. WREN,
Executive Committee.

PROPOSED EXHIBITION OF THE HENRICO AGRICULTURAL AND HORTICULTURAL SOCIETY.

Communicated for the Farmers' Register.

The first exhibition of the Agricultural and Horticultural Society of Henrico County, will take place at Goddin's Spring, near Bacon's Quarter Branch in the city of Richmond, on Wednesday the 26th May next, if fair, if not, the next fair day thereafter.

It is specially requested that all animals, and other articles intended to be put in competition for the premiums, may be at the place of exhibition at or before 10 o'clock. Indeed so important is it that this request be strictly attended to, that no article will be received after that hour. The respective committees appointed to adjudge the articles and award the premiums, will be at their posts at 9 o'clock, or earlier, to receive and arrange such articles as may be offered.

With this exhibition it is intended to connect a fair, so that all persons, whether members of the society or not, having fine animals, beautiful plants or flowers, rare exotics, valuable implements of husbandry, or any other article connected with the rural art, and wishing to dispose of them, will be permitted to bring them on this occasion, when we have reason to believe a good opportunity for sales will be presented.

At 11 o'clock precisely, the exhibition will commence.

At 12 o'clock the address will be delivered by the president, immediately after which the premiums will be distributed to the successful competitors, and then the fair will commence.

It is urgently recommended that every member of the society will, *without fail*, be present, and at as early an hour as may be, and that he appear with a badge of green ribbon on the left lappel of the coat.

The society will dine together at the place of exhibition. After the fair premiums will be given, in money or its equivalent in plate, at the discretion of successful competitors.

Persons who intend to compete for the premium offered for the best cultivated garden, are requested to send their names to some member of this committee as speedily as possible.

Stock arriving before the day of exhibition, will be provided for in the best manner by Captain Goddin, whose accommodations on the spot are most ample.

The farmers of the state generally, who may favor the society with their presence at this, its first exhibition and fair, will be most cordially welcomed."

JESSE H. TURNER,
TH. S. DICKEN,
RICH. G. HADEN,
WM. H. RICHARDSON,
JOSEPH RENNIE,
WM. D. WREN,
Executive Committee.

THE EVERGLADES—HONOR TO WHOM HONOR.

From the Fredericksburg Arena.

The Everglades of Florida form one of the most striking features of the scenery of the United States. The word has been familiar to the ears of the people, for three or four years past, yet we doubt whether one in ten has formed a definite idea of what is meant by the term.

The Everglades lie south of the 27th degree of latitude, and occupy the greater portion of the southern part of the Peninsula of East Florida. They are separated from the Atlantic, on the east, and from the Gulf of Mexico, on the west, by slips of land varying from 5 to 20 miles in breadth. There are a number of outlets to the Atlantic, whilst, on the western side, there is but one communication with the Gulf, called, recently, Harney river. Let the reader imagine a prairie, from twenty to thirty miles in breadth, and from eighty to one hundred in length, covered with water from two to four feet deep, with a rank grass springing up three or four feet above the surface of the water, and the whole interspersed with islets, varying in size from two to three acres to several hundred, and these islets generally covered with a thick wood. There are sometimes winding threads of water in which no vegetation appears, but to penetrate this inundated prairie in boats, it is necessary to force them through grass.

The Indians took refuge in these islands. They believed they were inaccessible to the white man. But their fastnesses have been invaded and their sense of fancied security dispelled. Col. Harney, of the 2d Dragoons, has on two occasions traversed this remarkable country,—on the first, entering from the Atlantic side and crossing to the Gulf of Mexico. He richly deserves all the praise for gallantry and enterprise which has been extended to him, but it is a mistake to claim for him, as has been done generally, the honor of being the *first* officer who invaded the Everglades. We would be the last to rob him of the least sprig of his hard-earned laurels, and he is too gallant and generous a soldier to stand in need of, or to wish for, credit justly due to another.

The honor of having first surprised the Indians in their fastnesses belongs to Col. Bankhead, of the Artillery. In March, 1838, he led an expedition from Fort Lauderdale, consisting of soldiers, and a detachment of sailors under the command of Lt. Powell, of the Navy—the whole amounting to nearly three hundred men. They had a number of boats, which carried their arms and ammunition, and which were pushed through the grass by the men, who waded in mud and water up to their waists. Col. Bankhead surprised a party, but before the island could be surrounded the Indians withdrew under cover of the night, leaving, however, their boats, provisions, utensils, &c. The labor which this party underwent and exposures to which they were subjected, may be, in some degree, conceived from the amphibious character of the scene of operations.

ON SAW-DUST AS AN ASSISTANT TO MANURE.

By Mr. William Sim, Drummond, Inverness-shire.

From the Edinburgh Quarterly Journal of Agriculture.

Previous to the year 1839, I used to allow a great deal of saw-dust, from a mill that I occupied, to go down the stream as worthless, but, in the spring of that year, I took it into my head to try if it could not be made useful to manure. With this view, I collected a large quantity and had it burnt, but was quite disappointed at the result, the quantity of ashes being very small, and by no means adequate to the expense of consuming the article. I then determined to try whether it could not be turned to better account by decomposing it through fermentation; and having made use of it to litter swine in a fold, I had a good deal that had been so employed carted out to a turnip-field in the month of April, and mixed up on a dunghill with an equal quantity of common farm-yard dung. In this way it has fully answered expectation. Fermentation went on as well as I could desire. The heat was very great, but, having applied water, there was no mouldiness, and the mass assumed a fat greasy appearance. It was put into the drills in bulk equal to ordinary dung, and the turnips are about the best I have; indeed, superior to any on the farm, except when an expensive application of dung, bones, and nitrate of soda was made.

I have been so well pleased with the effect of the saw-dust in the fore-mentioned trial, that I am now very careful not to lose any of it, and, during the past summer, have had folds for cattle as well as pigs littered with it, being convinced that it will be profitable whenever thoroughly decomposed.

An immense quantity of this article has hitherto

not only been lost, but made hurtful to salmon on going down the rivers. Instead of being so infectious, it may be rendered a most useful adjunct to other as well as to common manures, and I think it very probable that if nitrate of soda were used along with it, its action might come out still more strikingly.

Common fir bark may be put into a state for decomposition by laying it on roads before byres, where the droppings of the cattle will mix with it, and the carts go over and grind it. I have had a quantity operated on in this manner.

THE POSITION OF NEW YORK IN REGARD TO BANKING AND SPECIE PAYMENTS.

From the Journal of Commerce.

We hear from Philadelphia and other places at the south, that the Banks of New York will speedily suspend specie payments. This report has been so confidently circulated, that it has, at least in some small degree, embarrassed exchanges on this city. The citizens of New York suffer less from such an error than those at a distance who deal with us; yet the injury is general, and should not be inflicted without at least some plausible ground to support it. But we do not expect to prevent the repetition of the rumor in question by expostulation. We have no doubt many men are very sincere in believing that the New York banks must soon suspend. Perhaps the fact that we write this article, and so show that we care something about the matter, will confirm their opinion. Those who choose to believe us, will have the benefit of the truth. There is nothing in the state of things at present which has the least tendency to produce suspension here. Specie is flowing in from all quarters; the exchanges of the whole world are in our favor, with the exception, it may be, of Cuba; the paper held by our banks is almost all of it mercantile paper, given for actual purchases, and will be paid at maturity, and very little of it has more than ninety days to run. The merchants are so independent in their circumstances, that the whole loans of the banks might be paid in without producing any very great distress. Specie is as plenty as paper. What then is to cause suspension? We shall not break because Philadelphia breaks, or Baltimore, or any other city. Their course imposes no necessity upon us, but rather brings us strength. The uncertainty about southern currency is making New York, more rapidly than before, the settling house of the whole Atlantic coast. Indeed we understand that it is no uncommon thing for transactions in Philadelphia to be made payable in New York, though neither of the parties resides here; and some of the leading houses, in Philadelphia and farther south, have found it convenient to open accounts with Wall street banks, and keep their surplus funds here. Bills of exchange drawn in foreign ports on any place upon our Atlantic coast, are now very extensively made payable in New York. So, taking it all in all, those who look for the dishonor of New York, will find the result they anticipate receding farther and farther from their grasp.

DIVIDING CAPITAL.

From the Philadelphia Ledger.

Certainly it was never contemplated by our legislature that any bank chartered by the state should impair its own capital stock by dividing it among its stockholders—leaving to the community only its name as a guaranty for the safety of its issues. Yet, we believe, and record the prediction for a future day, that such will be the effect of either of the bills now before the legislature for again legalizing the suspension. In addition to its other abominations, it authorizes suspended banks to divide their profits.

Does not every member of that body know that it is the easiest matter in the world *to make profits in figures*, where the enjoyment of an irresponsibility may hide from view a broad disparity between *figures* and *facts*, where it may substitute a *name* for a *thing*, may cause the mere *title* of value to take the place of value or its representative?

Is an instance in point needed as an illustration of this indirect way of *dividing capital* and calling it *profits*? Thousands are at hand. A prominent one may be found in the case of the United States Bank. Every dividend which has been made by that institution since it entered into the mercantile business, if not for a long time previous, has been made from her capital, and not from the profits of her business over and above that capital. Yet we can readily conceive, however unpleasant to the parties the implied alternative may be, that the direction of the institution may have been guiltless of knowingly dividing its capital stock; for by the fiction of paper by which names can be substituted for things, multiplied at pleasure and retained while things vanish, figures would very possibly at any time have shown the dividends to have been made out of its profits.

If we mistake not, it is not over a year ago that the bank published a statement calculated to show that it had a surplus on hand over and above its capital of some one or two millions of profits. If its present condition be such as it is estimated by the public and by some members of the legislature too, as we judge by the bill before that body for a reduction of its capital, can any one suppose the institution has really lost such an amount of money in so short a space of time? Has not its real loss been constantly going on for at least a period of several years, and was it not accelerated by the very means taken to avoid realizing it? Did not the very increase of its own liabilities hold up the price of its own assets?

ON THE DESTRUCTION OF THE RED SPIDER.

From the Magazine of Horticulture.

A *certain* remedy for the vile insect, known by the name of *red spider*, no matter whether it has made its appearance on the grape vine, peach tree, or any other tree or plant that is grown under *glass*: sulphur, will destroy them, used in the following manner:—After syringing the trees or plants with water, as thoroughly as it is possible so to do, in the evening, when the sun is leaving the glass, fill half a dozen saucers or more, (ac-

cording to the size of the house,) with sulphur, and place them on the top of the flues, or pipes, if flues are not used, ten feet apart, and start the fires; the heat of the flues or pipes will heat the sulphur, and the vapor will rise and fill the house completely full, so much so that in the morning you will smell it quite strong, when you enter the house: by following up this method a week or ten days, the red spider will make its exit. A dry heat is the red spider's element, and they make rapid progress if this is not counteracted by moisture and sulphur, which completely destroys them. J. W. RUSSELL.

Mount Auburn Cemetery, Feb., 1841.

We can attest to the certainty of Mr. Russell's plan for destroying the red spider, one of the most destructive insects which infest green-houses, hot beds, and hot-houses; sulphur and a plenty of moisture are the only things which have ever enabled us to get rid of this pest.—*Ed.*

REMARKS ON SALT AS MANURE, AND FOR STOCK.

Extract from the London Farmers' Magazine.

We alluded to several experiments which had been instituted by Mr. Blackwood, in this neighborhood, for the purpose of ascertaining the relative merits of salt as a manure in raising potatoes, turnips, &c.; and we are now enabled to say that the result of this year's crop of turnips, goes far to establish the fact that salt prepared in a compound, and applied in the way which we formerly described, will bear a comparison with the best description of farm-yard manure in this particular. For not only has Mr. Blackwood again succeeded in obtaining a very large crop, but we can also bear testimony to the fertilizing properties of the compound from our own experience, having this season, from its application, produced fifteen acres of very fine turnips. In the compost which we applied there was mixed seventy-five bushels of salt, or at the rate of five bushels an acre, and we remarked, after the fermentation had proceeded for some time, that the texture and nature of the compost changed as it were, and the whole mass assumed a moist and rich appearance, which we ascribed to the operation of the salt in the mixture. It cannot however be expected that we are prepared to enter into a chemical analysis of this substance, or scientifically explain the manner and way in which it operates in the compound so as to produce these results. Our present object is rather to direct attention to the subject, for should this composition prove of general applicability, and we have no reason to apprehend the contrary from the success which has attended Mr. Blackwood's practice for the last six years, it will then be of the utmost importance to the agricultural community, that a knowledge of its beneficial influence as a manure or stimulant should be widely disseminated amongst them. It will be observed, that a general want of success has hitherto attended the numerous experiments instituted upon salt for agricultural purposes; but then these were never performed in such a manner as to prove satisfactory, for the great secret appears to be in submitting the compost to that degree of heat which is necessary to produce fermentation, and the process should be continued for some weeks previous to the mixture being applied to the land, so that the salt may either be decomposed or undergo some change from the fermentation which seems necessary for developing its fertilizing properties. Now the majority of those who have been in the practice of testing the properties of salt have either applied it to the soil in its mineral state, or have simply diluted it with some liquid; and even when a compound was formed of earthy matters and other substances, the salt was simply mixed with these ingredients before being applied to the land, or at all events without any attempt being made to produce that fermentation which appears to be essentially necessary to the success of the whole operation; hence the reason why reports of experiments on the use of salt as a manure have hitherto been as different as the soils on which they were made. We are aware that it has frequently been asserted by learned and scientific men, that salt is only a stimulant and possesses no nourishment, but may excite the vegetable absorbent vessels into greater action than usual. We are not prepared to controvert this assertion, but the result of several experiments would go far to establish a different view of the matter. In proof of this we may be allowed to refer to an experiment which is related by Dr. Holland, well known by his agricultural survey of Cheshire. "After draining a piece of sour rushy ground about the middle of October, he ordered some refuse salt to be spread upon a part of the land at the rate of eight bushels to the acre, and in another sixteen bushels. In a short time the vegetation disappeared totally, and during the month of April following not a blade of grass was to be seen. In the latter end of the month of May a most flourishing crop of rich grass made its appearance on that part where the eight bushels had been laid. In the month of July the other portion produced a still stronger crop. The cattle were remarkably fond of it; and during the whole of the ensuing winter (which is ten or twelve years since) and to this day, the land retained, and yet exhibits a superior verdure to the neighboring closes." As further confirmatory of the above experiment, we may mention a circumstance that was related to us by Mr. M'Nab, the distinguished manager of the botanical garden near Edinburgh.

For the purpose of exterminating the weeds with which the walks of the garden were infested, and if possible prevent their growth, Mr. M'Nab applied a pretty large quantity of salt to their surface, which had the desired effect during the first season, as not a single weed could be seen; so powerful indeed had been its operation, that part of the box-wood edging with which the salt had come in contact gave way. But afterwards, instead of having any effect in checking the weeds, it tended rather to promote their growth, as they appeared during the second and third seasons in greater abundance and luxuriance than they had ever done before. It would thus appear that salt is susceptible of undergoing certain changes, both before and after being applied to the soil; but before we can arive at a just conclusion with respect to the mode in which it operates so as to become a fertilizer, science must lend her aid to practice, and both must be combined to

attain this end. One thing, however, appears to be beyond the reach of dispute, that salt on certain soils, and applied in the manner we have alluded to, and in certain quantities, has a fertilizing tendency. In alluding, however, to the probability of salt becoming a useful auxiliary to the farmer in the cultivation of his crops, we must not overlook the advantages that would result from its more extended application as a condiment and ingredient in the food of animals, qualities we apprehend, which as yet are very little understood; but that it might be so employed with great advantage, the following extracts go far to prove. It is stated in the Edinburgh Encyclopedia, "That salt given with the food of cattle augments its nourishment. That in proportion to the quantity of salt eaten by cattle, the effects of the augmentation are perceived. That no ill consequences follow its use even when given without stint. These propositions are supported by unquestionable evidence, and the trials of very many persons. Crau, in the jurisdiction of Arles, in the county of Provence, France, has an extent of six leagues by three, the whole surface of which is covered with small rough stones, and not a tree or bush is to be seen upon the whole district, except a very few scattered on the border; yet on this apparently barren spot, by the free use of salt, more numerous flocks of sheep are bred and reared than upon any other common of equal extent in the kingdom; and what is not less remarkable, the sheep are healthier, hardier, and endure the severity of winter with less loss than those fed and bred on more luxuriant pastures, and that have the advantage of greater shelter. Add to this, that the wool of the flocks bred and brought up in the Crau is not only the finest, but bears the highest price of any in France. It is concluded that these surprising effects are consequent upon the unlimited use of salt, for allowing every excellence that can possibly be supposed inherent in the herbage, yet the quantity is so small, that without the abundant use of salt, a fourth part of the sheep kept in the Crau could not subsist on it." In Spain, where the finest wool in the world is produced, large quantities of salt are given to the sheep, to which they attribute, in a great measure, the fineness of the wool. Lord Somerville, who was among the first to introduce the practice of giving salt to sheep in England, states, in a communication with the Board of Agriculture, that "he purchased 200 Merino sheep in Spain at about 22*l.* 10s. each, which he brought to England, and as they had been accustomed to receive salt in Spain, he continued the practice when he brought them to this country, and he also extended the practice to his other sheep. His lordship some years afterwards removed from the rich vale of Taunton, in Somersetshire, to an estate which he had purchased in Surrey; and this being a light, dry, sandy soil, he did not think it necessary to go on at such a large expense, as salt then was so heavily taxed; but for some years afterwards he lost many of his young sheep, which he was afterwards inclined to think might have been saved, had he continued as before, to give them salt, and he subsequently reverted to his former mode of giving his sheep their regular supply of this useful ingredient. He says, that sheep require more salt in the autumn and spring months, when the dews are heavier, than in summer or winter, and that they consumed at the rate of one ton for every thousand sheep annually." Lord Somerville, together with Mr. Curwen, Sir John Sinclair, and others, all unite in recommending the use of salt as a preventive against the diseases incident to wet situations, and their experience almost proves the necessity of it. Sir John Sinclair, in his Agricultural State of the Netherlands, says, "that at Mr. Mosselman's farm at Chenoi, beyond Wavre, he found that salt was used for sheep, and that by allowing them to lick it, the rot was effectually cured." Mr. Bracebridge, of Walton-on-Thames, also was induced to drench some sheep, which were affected with the rot, night and morning with strong brine, after which he did not lose one; they became fat, and the meat was as fine and good as if the animals had never been affected. "In strong pastures," observes Lord Somerville, "when seasons are wet, the rot often spreads destruction over whole tracts of country; here salt must be beneficial. It is supposed, and with great truth, to correct acidity in the stomach, a disorder common to sheep even in Spain, but of a much more serious nature in the damp climate of Great Britain, more particularly when stocked on moist green food, such as turnips, vetches, and young clover." In Sweden, in Saxony, in Silesia, and in France, salt is given to sheep without stint, and with the best results. Now, when we consider these unequivocal testimonies in favor of the free use of salt, we cannot but express our surprise with Mr. Arthur Young, that "this practice should be common management in almost every country in the world, England excepted."

DESULTORY OBSERVATIONS ON THE BANKING SYSTEM OF THIS COUNTRY, AND THE EFFECTS OF ITS DIFFERENT MODES OF OPERATION.

Addressed to the consideration of the agricultural interest.

The great agricultural interest of the United States exceeds not only each other one, but all other interests together, in the number of its members, in results of productive industry, in amount of wealth, and in constitutional and rightful political power. The agricultural interest indeed is identical with the general interest of the country and nation; and were it to exercise its rightful political power always, (as it does very rarely,) for the advancement of its own benefit, even that purely selfish object could not be attained except by advancing the general interest and welfare of the country at large. This follows, not because of any peculiarity of agricultural pursuits, but simply because agriculture in this country is the greater interest, and all others are minor, and comparatively much smaller interests.

Yet, with all its political power, and the manifest expediency and propriety of exerting it, the great agricultural interest is continually influenced and directed by other classes, acting to forward their respective separate and opposite interests. And thus the general interest, which always agrees with the true interest of the agri-

cultural class, is frequently made to give way to the conflicting and adverse interests, either of the commercial, banking, manufacturing or other classes—any of which, because being minor interests, may be enriched by measures injurious to the general interest of the community.

The most striking and deplorable example of such a condition of things is presented in the long existing and baneful and yet commanding influence of the banking and paper-money interest of this country—which, having the means and power to govern the great commercial class, and to influence and direct the newspaper press, and adding these great powers to its own—has, by this combined influence, deluded, governed, and pillaged, and now has nearly enslaved, the great agricultural interest of this country. Very few of those individuals who are well acquainted with the operation of this system are enough free from its control, whether exerted through influence, or bribes, or vengeance, to *dare* to expose its iniquities, even if they have not a direct private interest in their being upheld and continued. It is not only their debtors whom the banks can control, or otherwise punish, if refusing submission to their will. So cunningly and closely has their influence been wound around society, that not one man can venture to oppose their will, and expose their frauds, without injuring himself, in his business, or in the opinion of a large and influential, and deservedly respected portion of the society in which he lives, and by the loss of whose approbation no man can fail to suffer. We are fully aware of the danger, the certain injury, to be incurred by daring to oppose and in any manner expose the frauds and abuses of the banking interest. We have already been made to feel, (though not thereby alarmed, nor to be deterred by,) the malignant power of their influence on society, and in consequence of the opposition to the system, and exposure of its action, made through this publication. But *at all hazards*, we shall proceed in this course—and endeavor if possible to awaken the members of the agricultural interest of Virginia, and of the whole confederacy, to a sense of the enormous evils which they have suffered, and the system of pillage which is still pursued by the banking system of this country, which is fraudulent in operation even as authorized by the laws, and far more fraudulent in violation of law. In pursuance of this object, we respectfully ask the attention of all readers, but especially of the agricultural class—and the support and countenance of all who approve our object in this warfare, which as yet we have carried on alone, without aid, and almost without a word of encouragement.

Before entering upon the subject, it may be necessary, to prevent misconstruction, to state in advance, what a reader might indeed hereafter learn from the tenor of our subsequent remarks. We do not oppose, as many have improperly inferred, but on the contrary most heartily approve and desire to have established, *a legitimate and properly operating banking system. Banking proper* is a most important and indeed essential auxiliary to commerce, and highly beneficial to the whole community; and we would make such banking as free from restraint as any other beneficial direction of industry or capital. But we might have the proper and beneficial use, without the numerous existing abuses of banking; and in the existing condition of things, we have the abuses to the fullest extent, and but little of the proper operation and use of banks and banking. We would no more desire to prevent or restrain the proper banking business or trade in money, than we would to restrain the commercial dealings in cotton cloths or hardware, or any other ordinary and useful direction of trade; and at the same time, we would no more grant peculiar previleges to the banking business, or exemptions from obedience to law, and compliance with legal obligations, than to these, or any other branches of trade.

At this time it would be difficult to find any individual, of any class in society, who would advocate all the features of the banking system, and the whole procedure of the banks of this country. The objections stated by different persons would vary much, according to their amount of information; and still more according to the supposed interest of the individuals. But there is not one person to be found, even among bank stockholders, bank officers, directors, or the neediest of the debtors and most submissive slaves of banks, who will not confess, (when safe to utter it,) that some one or more abuses of the system greatly require abatement or reform. Without including the stronger and more general objections which would be made by persons who have studied the subject as a branch of political economy, and free from the strong bias of self-interest, we are content to rely for proof of the position just assumed, upon the opinion of those who are friendly to the operation of the banking system, and who are the apologists for the greater number of the actual abuses. Yet out of the mouths of these, the friends or favored debtors, or even truckling tools of the banks, there would be enough of condemnation of the acts of these institutions. And such objections have existed, and have been whispered, if not proclaimed aloud, for years past, and are becoming every day more extended and more strong. Yet, to this day, there has been not one measure of reform of the banking system adopted and adhered to by the government of Virginia. It is true that some minor, but still beneficial restrictions on banking abuses have been enacted; but every one of these new limitations, as well as the more important of the previously existing, have been repealed, or the operation suspended, as soon as the banks required it, and the annulling of such restrictions was deemed essential to the pecuniary interest of the banks.'

It is an all-important question for the country, which should be thoroughly investigated, *why it is, that when gross banking abuses are admitted by all persons to exist, not one has been, or is proposed to be corrected?* To the answering of this question, as well as to marking the abuses, these and some succeeding articles will be devoted.

It is not our purpose to present an elaborate *or systematic* treatise on banking and currency in general. Able and profound works of this character are already attainable by all persons who feel enough interest in the subject to draw information from the highest and most abundant sources. Neither do we design to state in minute detail, the acts of banking fraud and

pillage, and injury to public interests and private rights, which would serve to illustrate and prove our assertions of the evils of the system. Such an exposition, even if embracing only important acts and cases strictly in point, would require the whole space furnished by this entire publication, to the exclusion of every other subject. We shall merely attempt to state important truths in plain language, and which we trust will be read by numerous members of the great agricultural community, who would perhaps gladly learn *some truth* on this subject, on which almost every existing newspaper in the southern states, either is silent, for the purpose of concealing truth, or speaks but to sustain and diffuse falsehood for the benefit, and at the dictation, of the all-powerful banking interest.

To clear away the fog in which banking operations are enveloped, it is necessary to separate them, and describe each one separately.

There are three several and entirely different operations combined in every bank of this country, and which, for better understanding, we will describe as if separate, instead of being combined and mixed together, as they always are in practice. These three operations belong respectively to *banks of deposite*, *banks of discount*, and *banks of issue or circulation.*

I.—The sole operation of a mere *bank of deposite* would be to receive, for safe-keeping, and for convenient transfer, all sums of money deposited by individuals. Money would thus be better secured from wear and waste, from thieves and from fire; and guarded far more cheaply, as one house and one guardian would do the duty for hundreds or thousands of individuals. This alone would be an important service to each depositor, and, in the aggregate, a great benefit to the public interest. Another important benefit would be, that of facilitating payments between individuals by the use of checks, which is merely transferring a credit for a certain amount of money deposited, from the account of the payer to to that of the person to be paid. To make all the cash payments of a commercial city by actually counting and delivering so much money, would alone require much time and trouble, and some risk of loss. But by using checks drawn on deposites in banks, so far as convenient and preferable, not one quarter of the trouble, time, and risk is requisite, nor the handling and counting of one tenth of the amount. Still greater is the benefit when the payment is to be transmitted to a distant creditor. A check for the amount can be conveyed more easily and cheaply than the amount of money; and should the check miscarry on the way, no loss will be sustained.

II.—A *bank of discount* is formed (whether by one or a few individuals, or numerous stockholders incorporated as a banking company,) to make a profit by discounting (for the interest) notes of individuals, due in a short time, for a previous business transaction between the debtor and creditor, and which notes were given for a valuable consideration. Thus A, a tradesman or mechanic, who, for want of capital, needs early payments to be enabled to carry on his business, would sell commodities, worth say $100, to B, a merchant, but that B cannot pay the cash and A cannot do without it. The bank of discount serves to remove the difficulty, and to benefit both parties. B knows that at 60 days he can make the payment to A, either by the sale of the articles bought, or by his receipts from other sources. He therefore gives his note to A, payable at 60 days, the payment being amply secured, as of course can always be done in such a case, by every judicious and honest dealer. The bank immediately discounts B's note, for A, that is, pays him in hand the full amount except the interest for 60 days, which is retained, and constitutes the bank's profit on the transaction. A does not even lose that interest, because as much was added to his cash price, and willingly consented to by B, for the benefit of the delay of payment. Thus, A is served, by getting cash in hand, without which he could not have sold, and to obtain which he might otherwise have suffered great loss. B obtains time, without which indulgence he could not have bought; and the bank obtains interest on its capital, in the safest of all possible modes of lending money; and the public interest is served by this and every such transaction, because every legitimate and honest gain, by the exercise of the industry or use of the capital of an individual, adds to the public wealth and prosperity. This small and simple supposed transaction is an illustration of all the benefits of banks of discount, and the safe and beneficial mode in which such banks may facilitate trade and the *credit system.* The credit system might exist, and very beneficially, without the intervention of the bank. It would only be necessary, for that end, that the producer of commodities should give credit to the merchant, and the merchant also to the consumers. But this would be impractible, in the general; and great sacrifices of prices, and losses of debts, and ruinous disorder of business and employments, would be incurred, if this kind of extended credit were attempted. Banks of discount furnish all that is wanting to facilitate trade by making the credit system safely available by all persons who *deserve to be trusted.* And if adhering to this course, it would be a very rare occurrence for a bank to sustain a loss by making a bad debt. For if the directors used any care or prudence in ascertaining that the drawer and endorsers were good, when the note was discounted, they could scarcely all fail within 60 days. And if, by any different and less safe operations, such as will be mentioned hereafter, a bank should become embarrassed, yet if it had always strictly observed this rule in discounting, it need but to retain all receipts from debtors, and, as every debt would become due, and be paid within 60 days, of course in that short time its whole capital stock would be in hand. There could not possibly be any serious "pressure" upon a bank so operating—nor even an effective "run" upon it, even if it had added to these proper and useful operations that of issuing and circulating paper money within any reasonable bounds.

But this system of discounting notes, given for *real purchases* of commodities, and to be paid at a certain fixed and early time, though it was the designed and is the only legitimate operation of banks of discount, has been entirely departed from, in almost all the transactions called "discounting" by the banks of this country. Notes are generally drawn, not to pay for an actual consideration, and property transferred of equal value, but are merely fictitious pretences of such trans-

actions, made merely to obtain loans, perhaps to pay debts already incurred, and the proceeds spent, or to get money to be spent. The drawer does not owe the amount to the endorser who obtains the discounting of the note; the arrangement of their names is usually a mere fiction, known as such to the bank and to every body, made to obtain a loan, by aid of the securityship of the endorser—and which would be a fraud, except that the procedure is perfectly understood and encouraged by the bank. Further—those who thus borrow money are rarely ready to repay it in 60 days, nor is it intended to be so paid. Therefore such notes are generally "renewed" every 60 days, until the bank needs and insists upon repayment. And thus the bank, instead of discounting real notes, drawn for valuable consideration, and for purposes of trade, and to be paid at maturity, is in fact making loans upon long and uncertain times, to borrowers for any objects whatever. It is easy enough to see, even if looking to the interest of the bank alone, that it thus must soon lose all immediate or early control of its capital, and must run great risk of forming bad debts; and, instead of facilitating trade and aiding real business, that the bank has become a loan-office (if not a usury office,) and its capital absorbed by men who are already in debt, or who, by this facility for forming debts will be led on to extravagance, hazardous adventure, and ultimately perhaps to ruin. Such is the process, and such are the means by which many men are ruined by bank "accommodation," and by which course, also, banks lose greatly in the debts of such ruined and insolvent debtors.

But let us return from the actual and general abuses and corruption of the system, to the bank of discount operating legitimately and properly, as at first designed to operate.

A bank of deposite, simply, however beneficial, could yield no profit, as it would have no source of income. The depositors, however, could afford to pay something for the safe-keeping of their money, and the facilities for transferring it. And that is done, beneficially to all parties, by the two distinct operations of receiving and transferring deposites, and of making discounts, being always carried on by the same bank. The bank then has the use of the depositors' money, under the obligation of repaying it whenever called for, (or otherwise at such notice as may be agreed upon,) as compensation for taking care of it; and by adding the use of the amount of unemployed deposites to its capital stock, for discounting notes, of course the profit of the bank will be so much increased, without injury to the depositors. Indeed, by thus employing the capital which would otherwise lie idle and useless, whether in the various proprietors' desks, or in a mere bank of deposite, the trade and the productive wealth of the country will be benefited and increased, by thus drawing from what would have been otherwise a totally barren and unproductive source.

So far, on our supposition, every thing has worked rightly, and every interest concerned has been benefited by the combined operations of the bank of deposite and of discount. It is true that after the union of the two banks, or of these two operations, there is now for the first time some risk; and the managers should take care not to incur heavier obligations than they can be sure to meet promptly. If the deposites are to be paid on demand, then a considerable proportion of the deposited money must be kept on hand idle for the purpose of meeting, with absolute certainty, all such uncertain demands. The directors of a bank will soon learn what is a sufficient proportion for this purpose; and if (for example) the average amount of deposites is $40,000, and it is found that $10,000 retained will serve to meet all checks from depositors, then $30,000 of the deposites may be safely used for discounting notes, and the interest thereof will go to increase the other profits of the bank. If the deposites are not made gratuitously, as supposed above, and as is usual with banks, but a lower rate of interest is allowed thereon to each depositor, as by the savings banks, then a short but sufficient time of notice is given by the depositor before drawing. This time of notice secures the bank from unlooked for demands; and thus it may, as the savings banks do, safely and usefully discount to the amount of the whole of the deposites as well as of their original capital stock. And in whichever of these two ways deposites are made and drawn, (according to the rule established for the bank,) so long as the discounts are properly made, every thing will be safe, and every operation of the bank will be beneficial to all parties, and to the public. And if these were the only banking operations, they could not be too greatly extended for the public good; and as long as such operations were demanded for the purposes of trade, the profits thereof to the banks would be fully equal to any other equally safe and secure investments of capital.

It may perhaps be a novel annunciation to many persons, that there are already many banks in the United States, and even in Virginia, strictly of this excellent character and mode of operation. The various savings' institutions, if acting honestly and according to their charters, are precisely banks of deposite and discount, and nothing else. And though they pay 5 per cent. for all deposites, after 10 days continuance, and require but a week's notice to return deposites when wanted, these banks are quite profitable to the stockholders, and have been far more so for the last few years, than the great and rich institutions to which the name of "bank" is exclusively applied. And here we may pause, and ask of all who are well informed on the subject, and who have no interest to be served by the abuses and the frauds of the general banking system, why all banks might not beneficially, and profitably for their stockholders and the public, be conducted on precisely the same principles as are the savings' banks?*

The savings' banks are indeed very small con-

* The Mechanics' Savings Society of Petersburg was established, and has been in operation since April, 1837, which is precisely the time the most disastrous to banks since 1817. Yet this humble institution has kept all its capital stock and deposites constantly employed in discounting, and has made profits equal to 10 per cent. per annum, on its stock, without having yet lost a dollar, or made a doubtful debt. This shows the happy results of legitimate, prudent and honest banking; as the course of the banks which issue paper money, through that same time, and their present prostrate condition, show the results of the illegitimate and fraudulent banking system.

cerns, each having but a small capital, few stockholders, and operating on so small a scale, and so quietly, that their existence is scarcely known by half the public. It may, therefore, seem even ridiculous to assimulate to these the operations of thegr eat and privileged, and monopoly-pampered banking institutions, which have so long formed the most powerful interest in this country, and which now occupy the attention of every individual, and agitate the whole confederacy, by the magnitude of their operations and their power, and by the baneful effects of both. But, inconsiderable as may be the operations of the savings' banks, it should be remembered that they have been established, have proved successful, and have been continually growing in number, in wealth, and in extent of operations, in the face of, and under the opposing influence of the great banks, endowed by law with exclusive privileges and immunities, and guarded by law from all dangers, and penalties of misconduct—while the poor and weak savings' banks have had no privilege whatever, except a mere act of incorporation. Yet these are constantly growing richer and stronger, while the highly privileged banks have been becoming poorer and weaker—and would sink at once into bankruptcy, and suffer its deserved penalties, but for the government stepping in between them and their creditors, to protect the banks in their dishonest failure to comply with their legal as well as moral obligations.

(To be continued.)

ON OIL DREGS AS MANURE.

From the London Farmer's Magazine.

In the present day a great deal is said about various kinds of manure, but that certainly must be the best which makes the land most productive. I have tried various kinds, but I find none to answer so well as oil dregs; I procured of Messrs. Wake and Officer, of Hull, a quantity last spring, to drill in with turnips; I put on about 1½ cwt. per acre, with about 6 qrs. of ashes, and I find them to be much better than those drilled in with bones; in fact, they are the best piece of turnips I ever had, and there is none better in the neighborhood. I have drilled about 2 cwt. per acre in with my wheat; how it will answer remains yet to be proved. As several farmers have tried oil dregs as a manure, perhaps this will draw from the pen of some one more able than myself some remarks on the subject.

I am, sir, yours,

A CONSTANT READER.

N. B. The cost of the dregs was three guineas per ton.

PRICKLY COMFREY.

From the Journal of the Royal Agricultural Society.

Sir,—Allow me to inquire through the medium of your magazine, whether any of your readers have tried the prickly comfrey (*symphitum aspeirmum*) for soiling, on such a scale as to be able to give any information as to how it will answer for that purpose? I have a few plants of it, and find it exceedingly productive, having cut 14 lbs. of green food at a time from one root; and I know of no plant that would answer so well, if cattle would like it, and thrive upon it.

I have no doubt that on good land it would produce 40 tons per acre per annum, with little or no expense in the culture; but I should like to know how cattle would do upon it before giving up much ground to it. They do not appear to be fond of it, but that may be owing to not having enough to give it a fair trial; as many sorts of food are not eaten by cattle readily at first, which they are fond of when used to. There appears to be a large quantity of mucilage in the plant, from which I should suppose it would be nutritious. Any information from any one who grows enough to keep stock upon it for any length of time, will be thankfully received.

For the Farmers' Register.

TO THE FARMERS AND PLANTERS OF VIRGINIA.

April 8th, 1841.

Friends and brethren—Will you permit one of your own fraternity, without deeming him obtrusive, to solicit your attention to a subject deeply interesting, not only to our own class, but to every other in the community, since *their* prosperity is so intimately connected with and dependent upon *ours*, that neither can permanently prosper unless *we* do so—at least in the aggregate. The subject to which I allude is, the establishment, at the city of Washington, of a National Society of Agriculture.

To such of you as are conversant with the history of this vital art, both in our own and other countries, it is needless to dwell long on the well known fact, that there is not now a civilized country upon earth, *except our own*, but what has had, for years past, either such a society, or some similar institution. It is equally well known, that the improvement of each nation in all the various branches of husbandry, has been almost stationary for centuries before the establishment of such institutions, and rapid thereafter, beyond what any one could have imagined to be possible. Even in China, a country which we, in our self-imputed wisdom, deem almost barbarous, agriculture has always been fostered by the government, and held in the highest honor, ever since there was any authentic history of the country. Are *our* people and country so entirely different from all others in the world, that *we* can prosper without any resort to the means which every other civilized nation has deemed essential to their welfare? I confidently think not; and, with your permission, I will proceed to offer a few reasons to prove that no country whatever is more in need of a national society of agriculture than our own, if indeed there be any that require it so much.

In addition to those general arguments in favor of such an institution, which apply to every country, there are some peculiarly applicable to our own, that seem to me unanswerable, and which I beg leave respectfully to state. Certain causes which have a strong tendency to destroy our heretofore happy union have long been operating among us; and, I deeply regret to say, have manifestly been on the increase for some years past, so that it is now quite common to hear men talk-

ing familiarly of disunion, whereas it was once considered a sort of treason even to speak of it as a possible event. But this most happy state of things no longer exists. Demons in human shape, whose inmost souls are cankered with lawless ambition, and reckless fanatics, with too little sense to perceive the fatal tendency of their opinions and actions, have been indefatigably engaged in disseminating sectional jealousies and animosities throughout the United States; and the success of these diabolical efforts has been far greater than could well have been anticipated. They have, in fact, most fearfully disturbed that harmony and good will which might have bound us inseparably together, as long as time shall last, had the same efforts been made to strengthen, as have been made to sever those ties of friendship and brotherly love, upon the preservation of which the peace, the prosperity, and the happiness of the American people most unquestionably depend. To annihilate, if possible, these baneful elements of discord, or at least to neutralize them, *ought* to be the paramount duty of our national legislature. But, alas! the members themselves, or rather a considerable portion of them are deeply infected with the deadly poison of disunion, and, of course, appear to have no other object in meeting but to aggravate all the causes of sectional animosities and dissensions, by making party questions and quarrels of almost every subject of discussion that comes before them. This has so often happened of late years, that it is by no means uncommon in these times to hear Congress Hall stigmatised with that most disgraceful, but not unjustly bestowed, nickname, "*bear-garden.*" All the consequences of such shameful conduct are bad enough; but the worst of them is, that the hostile feelings thus generated by those misrepresentatives of the people, are carried back by them, or transmitted through their vile party-newspapers, even to the extremities of our union, and multitudes of the people thereof have become so deeply infected with them, as to look upon each other as little better than natural enemies.

If this deadly poison has not already reached the heart's core of our body politic, I beseech you to consider well, whether there is any thing better calculated to stop, or, at least, to mitigate its fatal progress, than a national society of agriculture. This would annually collect, from the remotest states of our confederacy, many of the yeomanry of the land—the very bone and sinew of our country—who, being drawn together by a common interest, and without any possible cause of quarrel, would very soon learn that they had been most grossly misrepresented to each other, and would part, after each meeting, with a desire continually increasing to meet again. All would learn something new to them by such intercommunication; and the professional benefits which each would derive from it would so increase their mutual good will, would so warm their hearts towards each other, that the fraternal regard of the farmers and planters of our country—who fortunately yet constitute a vast majority of our whole population—would continue to "grow with their growth, and strengthen with their strength," in defiance of all the attempts which could be made to destroy it. And the incarnate devils, who are now laboring so hard to accomplish objects which, if attained, would inevitably dissolve our union, would soon fall into that utter contempt and detestation which their infernal purposes most justly deserve.

And now, my friends, if you approve of the foregoing suggestions, will you not give to the friends of a national society of agriculture some cause to hope for your co-operation in the attempt to establish one at the city of Washington? A meeting for the purpose will probably be held during the extra session of congress, of which due notice will be given, if there is a probability of effecting it. And if only *one* person would attend from each congressional district, or *one or two* from each of our agricultural societies, (to the members of which I particularly appeal,) I have no doubt that a large assemblage, friendly to the object, might easily be convened; for a similar appeal will be made to the agriculturists of the other states, many of whom have already manifested a strong desire to form such a national institution. Thousands of our citizens, I believe, would hail it, not only as the harbinger of rapid improvement in all the different branches of husbandry, but as the peace-maker that would finally exterminate all sectional jealousies and animosities; every element of popular dissension; and would unite in one perpetual league of concord and amity all the different states of our union.

Possibly I may ascribe to a national society of agriculture more power than it could possibly acquire, more extensive influence than it could ever possess. But this self-deception, if indeed it be one, can do no imaginable harm either to my country or myself. I will, therefore, continue to cherish it, and will still hope to witness the trial of such a society before I die. Should such trial be made, and fail, I will then, but *not until then*, acknowledge my error.

On this subject, of a national society of agriculture, and the duty of congress to promote some such establishment, there are some arguments so powerful and conclusive in a late address of Chilton Allan, Esq., the patriotic president of the State Agricultural Society of Kentucky, that I could wish to see them republished in every agricultural paper in the United States; for I have read nothing so well calculated to carry conviction to every mind. The man who could read them, and remain unconvinced, must have an intellect very differently constituted from any thing that I can imagine.

Before I conclude, I must beg our friend Ruffin to tell us what *he* thinks of the foregoing project. A few favorable words from him would greatly encourage the efforts of many others, as well as the hopes and exertions of your, and his old friend, JAMES M. GARNETT.

P. S. If any of the editors of our political journals are friendly to the establishment of a national society of agriculture, I hereby respectfully ask them to republish this communication, or to give us something of their own, which I should much prefer.

Our esteemed correspondent rates our influence and recommendation at much too high a value; but, whether worth any thing or not, our best wishes go for the success of his plan and proposal. But we confess our want of confidence,

nay, our despair, as to our government, state or federal, doing any thing for agriculture. Further, we cannot believe our own class, the agricultural interest, could have enough of zeal, public spirit (or even enlightened self-interest,) and energy to perform their part in the great and important work proposed. It might be easy enough to assemble enough individuals at Washington to form a sufficiently numerous "National Agricultural Society;" but, we fear, it would be impossible to induce the proper men to go, and especially from the remote parts of the United States. Moreover, if a body, as well constituted as could be reasonably hoped for, could be assembled for this purpose in Washington, we doubt whether the novel attractions and political excitement of the place would not divert the attention of many of the most disinterested and independent members from their designed labors; and taking the whole body, there would probably be more exertion made by members of the society in using the opportunity for seeking office, or other private benefits to themselves individually from the public purse, than to promote the interest of agriculture and the common weal. If the individuals would not so act, they would form a rare exception to the general course of things in the corrupt political atmosphere of the city of Washington.

We have not examined the question of the constitutional power of the general government to aid the agricultural interest and improvement in this mode, and therefore do not mean to express an opinion thereon. We would readily publish the argument of the subject, from the address of Chilton Allan, esq., but have mislaid our copy. But it is not any constitutional obstacle that will prevent the action of congress for this beneficial object. If there were no such objection, any favored individual could more easily obtain money for some useless job or merely nominal public service, and given solely for his private emolument than the same amount would be appropriated for the most important services to agriculture. Thus, as one example among hundreds, that scientific quack and empty pretender, Featherstonhaugh, though a foreigner, obtained from congress for two years $5000 a year, upon the pretence of geological surveys in the North-Western territories, of which the plan was doubtless devised by himself, and solely for his private benefit. The service was performed by his making a pleasure excursion in a couple of summer months, and the writing a report thereof, (to be published at the public expense,) which report consisted principally of loose generalities, and was more like an introductory lecture of a professor of geology, than presenting precise results of laborious and accurate field investigation. This fat sop thus dispensed by favor, also enabled the recipient to assume and usurp impudently the title of "Geologist of the United States;" and the reputation thereby stolen no doubt helped him subsequently to the very important appointment by the English government to survey the disputed boundary line, and by which he has been enabled to go far towards embroiling the two governments in war. It is to such applicants as these, who are sufficiently urgent and patient, and truckling enough to the money dispensers, that appropriations are readily made by government—and not to such public objects as the encouragement and promotion of agriculture. The Smithsonian fund will be wasted by congress in jobs for private benefit, just as has already been done with a very large part of the great general education fund bequeathed to the city of Philadelphia.*

ED. F. R.

REMARKS ON THE USE OF BONES, AS MANURE, AND THE PROGRESS OF THE IMPROVEMENT.

From the Farmer's Magazine.

We shall briefly refer to this substance as being one of those fertilizers which have more recently been brought under the notice of agriculturists, not however with the intention of entering into its merits as a manure, for these are manifold, and already well understood throughout the country. Our observations will therefore, in a great measure, be confined to the circumstances attending the introduction of bones, and the difficulties which presented themselves before the agricultural community could be made aware of the advantages resulting from their a doption, affording, as it does, another powerful argument in favor of having a general centre of reference for the purpose of solving any problematical question, and disseminating the knowledge of it. When potatoes, turnips, clover, &c., were first introduced into this country, there were few, if any, agricultural associations in existence, whether local or otherwise, and many circumstances might be brought forward in extenuation of the slow progress which these made at that time before their cultivation was generally adopted; but at the comparatively recent period when bones were introduced, agricultural associations abounded in almost every district, and we therefore cannot reconcile the laxity displayed by farmers in adopting so important an auxiliary in their management, without being convinced of the utter inefficiency of these associations as at present

* After the above had been delivered to the printer, we saw in the Edgefield Advertiser the following statement. If correct, the Smithsonian fund is already disposed of. After speaking of the sinking of the Girard bequest in the United States Bank stock, the writer proceeds:

"We hear that the Smithsonian legacy is in a similar condition, having been invested, under the influence of Col. Johnson, in Arkansas stocks, which are worth about as much as continental money."

constituted, to bring any system into notice, so that its operation may be simultaneous and generally beneficial. It was only about thirty years since, that the value of bones began to be discovered in this country, and at that period, and for many years afterwards, they were only partially known in a few counties. The effects, however, produced by the bone system of management have been wonderful; in short, this important article has been the means of bringing more waste land into cultivation than perhaps any other substance which has ever been brought under the notice of agriculturists.

But let us now inquire how this great change was brought about, and how long this system was pursued, by a few isolated individuals, before its importance was generally known and appreciated. The time is not so far distant, but that many individuals can remember, when bones were broken with the hammer in the counties of Lincoln and Nottingham, and put into the ground in very large pieces, at the rate of seventy to eighty bushels an acre. In 1812, the bone-crusher from Nottingham might have been seen with a saucer in one hand, showing his half-inch bones, and in the other a turnip, as a specimen of their fertilizing powers, at the same time entreating the farmers only to make a fair trial of them; subsequently they were drilled in with the seed, the turnips, at the rate of from twenty to twenty-five bushels an acre, while some of the higher managers put in forty bushels per acre. The benefits resulting from using bones were, however, well understood for many years in several counties in England, before the practice found its way into Scotland; and although a few individual farmers may have adopted the system from observing its advantages, yet we are mainly indebted to the mercantile body for their final introduction and extended use in Scotland. For not only did our merchants commission the bones at their own cost and risk, but it was only by using the most pressing solicitations, and the greatest perseverance, that they were enabled to get the generality of farmers to comprehend their advantages, or even to give them a patient trial; and it is only within the last few years that the demand has in any way been commensurate to the benefits derivable from their use, in connexion with the extension and advantages of the sheep system of husbandry. Now, when we consider the length of time that was allowed to transpire before the beneficial effect of this highly important manure was made manifest in Scotland, even long after its advantages were known and appreciated in England, we cannot but regret that improvements of such a nature should be left to the merest chance or accident; or that the best interests of agriculture should be sacrificed and retarded for so many years, merely from the want of co-operation in that body whose interests it would tend most to advance. But this is not a solitary instance that might be brought forward in condemnation of our present inefficient means of co-operating for the diffusion of agricultural improvements; on the contrary, it will only be necessary to direct attention to rape-cake, saltpetre, nitrate of soda, soot, &c., &c., to show the partial manner in which such substances are understood by a few individuals, before they become of general import to the agricultural community. It therefore cannot but appear evident, even to the minds of the most indifferent, that there is something in our present system which imperiously demands an immediate and most searching inquiry.

MONTHLY COMMERCIAL REPORT.

For the Farmers' Register.

There is nothing of importance to notice in the business of the present month. A slight advance has taken place in tobacco and cotton—in the former article, owing to large sales in England; and in the latter, from the falling off of the receipts, compared with last year. In flour and grain there is no change, and the export demand is small.

Money matters and exchanges present little variation. Stocks of all kinds are dull, and most of them unsaleable. X.

April 27th., 1841.

ON THE VALUE OF FIELD PEAS AS A CROP, AND TO PREVENT INJURY TO STOCK FEEDING THEREON.

To the Editor of the Farmers' Register.

Hancock county, Ga., April 13th, 1841.

Sir:—I have for several years placed a high value on the pea crop, as peculiarly adapted to our agriculture and wants in this section. It appears to me more fertilizing than any green crop we grow, grows taller on poor land, is easily planted, does not hinder us much during the busy season, and in every way, is a fine accompaniment to a corn crop, and furnishes a fine amount of fall and winter provender for stock (which we are generally much wanting;) but I have heretofore thought it left my stock, particularly my hogs, in an unhealthy condition, and on that account less valuable than it at first promised.

I have used much inquiry and thought to find a remedy for this defect, and hope I have succeeded; but it will be necessary to test the remedy more fully, and on that account I send it to you, if you think it worthy, for the use of your subscribers.

Last fall I was conversing on that subject with a very honest practical farmer. He told me for a number of years he had used the pea crop in fattening the most of his stock, that they throve as kindly on that as on corn, and that none were injured by it; and he gave me his plan. He prepared in the pea field a large tight trough, and kept it at all times well supplied with salt and ashes dissolved in water. He never turned hungry stock into the field, only turning in his horses, cows and fattening hogs. I tried it last season, and the result was precisely as he informed me; they all appeared fond of drinking out of the trough, and were healthy, and did well after they were turned off on other food. I used the precaution to turn my horses and cows off one or two days each week, and I would suggest that horses or oxen should never be put to hard work while filled with peas. Nor would I suffer my stock hogs to feed on them; they are I think more unhealthy for young than older hogs.

I cannot close this without giving you a *hearty* "well done" for your bank comments in the Farmers' Register for March, and the political essays in the second number of the 'Southern Magazine.' J. S. WHITTEN.

MAKING HAY.

From the New Genesee Farmer.

The old proverb says, "Make hay when the sun shines;" but there is something else besides sunshine necessary to make good hay. The grass must be cut when it is mature, or the animals that have to eat it will have a hard bargain.

Many people, including some good farmers, judge of the quality of common hay by its greenness and brightness. It is a fallacious test. We have been feeding out, for a week or two, (3 mo. 8,) hay that was as bright as any body could desire, well made without rain, and kept in the barn. It was a mixture of red-top and timothy, cut about midsummer on account of clearing the enclosure for the cattle; and which, had it been left to stand one month longer, would have made excellent hay. As it was, the cattle ate reluctantly, and evidently with some loss of flesh. It is now a pleasure to see with what eagerness they take hold of hay that was cut afterwards.

There is a great difference between the *natural* and *artificial grasses*. The former, including red-top and timothy, yield their nutriment principally from the *stem*; and like the sugar cane and other plants of the same *natural order*, should be suffered to stand till the *stems* are mature. On the contrary, the leaves of the *artificial grasses*, including the clovers and lucerne, are the most valuable parts; and for this reason, these kinds should be cut when the *leaves* are in the most perfect state.

VALUE OF THE ROHAN POTATO.

For the Farmers' Register.

After a trial of several years, the value of the Rohan potato is fully established. And judging from the statements that have been published in the northern papers, it appears to be equally as productive in Virginia, as elsewhere. A neighbor of mine last year raised a bushel and a half from one tuber; and quite a large crop from a small quantity of seed. My own crop exceeded by far any thing that I have ever obtained from other varieties of the potato. From less than half a bushel of seed, and from a very inconsiderable portion of my garden, I made potatoes enough for almost daily use in my family, during the fall, winter and early part of spring, besides reserving an ample supply for planting. And this was done without any extra care or cultivation.

My object in adverting to the Rohan potato now, is to express the belief that it is much better adapted than any other kind, for culture in this climate. In eastern Virginia, the Irish potato has never been cultivated with success, farther than as a vegetable for early use. A square in the garden is perhaps as much ground as is usually occupied by it. We buy our potatoes for winter use, and even for seed, from the northern supply which is brought into our markets. With the aid of the Rohan, it is in the power of every farmer to fully supply his own table, and to raise extensively for his stock, or for market. The quantity of potatoes annually brought into this and other southern states from the north is immense; and the prices for a series of years would probably average at least 60 or 70 cents per bushel. Now, when there is a growing disposition to cultivate root crops, it is respectfully suggested that the Rohan has claims which should not be overlooked. It may be made the means of rendering us less dependent on others for so valuable a vegetable; and by the abundance which it will supply, of contributing materially to the wants of the farmer—who should be no more under the necessity of buying potatoes than meat or corn.

In respect to quality, the Rohan is inferior to no potato that is cultivated. If it has less delicacy of flavor than the "Mercer," it is equally farinaceous, and has more of richness.

T. S. PLEASANTS.

SUMMARY OF NEWS.

Reprinted from the Weekly Farmers' Register.

Saturday, April 3, 1841.

The new acting governor of Virginia, Mr. Patton, ordered to be delivered to the governor of New York, the counterfeiter Curry, who had fled from New York to Virginia, and had been demanded by the governor of New York. Thus Virginia fully performs to New York that constitutional reciprocal duty which New York refused to Virginia. The latter occurrences exhibit still more strongly the wrong of the earlier, in the slave-stealing case; and also the firm resolve of Virginia to *do right*, as well as to *suffer no wrong*. Even the differences of opinion as to the propriety of delivering up Curry, and the results, set forth and strengthen the cause of Virginia; and they are in no respect to be regretted, except as being the cause of Gov. Gilmer's resignation, which is a matter of great and almost universal regret. The rights, interests, and even political existence of Virginia and the other southern states, are at stake in the main controversy with New York—and if not *now* maintained, will be now, and for ever, left undefended and defenceless.

A new military projectile (the "Death dealer") of tremendously destructive power, has been discovered, and recently tried satisfactorily in England.

Accounts continue to be received of great destruction by the floods in the South. The Savannah Georgian says, "that the flood did immense damage to the planters in the vicinity of the Oconee, Ocmulgee and Ogechee rivers. On Commissioners' creek, ten mills have been carried away. Many other mills on other streams have been swept off. Numbers of cattle have been drowned. On one island in the Oconee 700 head of cattle were destroyed, and several persons have lost 100 head. Valuable lands on the rivers have been much impaired in value, if not totally destroyed, by the washing of sand over the surface."

Sixty-five Kansas took advantage recently of the absence of the Pawnee warriors, entered the encampment and massacred all but 11 of the women and children found in it. This massacre will be a signal for a fierce war between the Pawnees and Kansas.—*St. Louis Rep.*

"The government of Bolivia has received intelligence that Mr. William Wheelwright, of the United States, has arrived in the Pacific with a certain number of steamboats to establish a more certain and rapid communication between the ports of Chile, Bolivia, Peru, Ecuador, and New Granada, and with Europe, by the isthmus of Panama, and that an exclusive privilege has been granted to him for this purpose by the government of Peru.

Dr. Dyott, who is confined in the penitentiary at Philadelphia, for his fraudulent banking operations, is represented as being in a remarkable state of contentment and cheerfulness—congratulating himself that "in this season of pecuniary distress, he has no notes to meet, and none of that sleepless solicitude he once had about *pay-day*." It is a great pity that all the other unfortunate wholesale swindlers, through banks and paper money, were not put in the same place (ex-

larged to accommodate so great a number) where their worthy brother has found so much ease. But if Dr. Dyott's bank had held out until now, he might have been made easy without going to the penitentiary; for now there is *no "pay-day"* for banks, except in paper promises, which of course Dr. Dyott's, as all other banks, could furnish in any desired quantity.

Peter Robinson, has been convicted and sentenced to death, for the mysterious and remarkable murder of Mr. Suydam, at New Brunswick, N. J.

The recent elections at Lower Canada have been attended with much turbulence and riot, and some destruction of life.

A large quantity of lead, the products of Wythe county, Virginia, has been sent to Richmond.

The congress of Texas has passed an act that no sale of slaves shall be made under execution, unless for defalcation to the Texian government. This is offering a high bounty for the emigration, from the United States, of bankrupt and fraudulent debtors, who hold or can acquire possession of slaves.

A loan for the Texian Government has been obtained in France.

The Homer, one of the largest steamers on the Mississippi, sunk on the 16th. with a valuable cargo, part of which was 500 tons of rail-road iron.

The president of the United States, has been dangerously ill with inflammation of the lungs. The Washington papers of the 2d. report that he is better.

United States Bank stock has lately been sold as low as 15½.

Saturday, April 10, 1841.

The brig Richmond, of Salem, has been searched by a British vessel of war. This is the fifth Salem vessel that has been so treated.

Alonzo F. Weed, ex-president of the swindling Bank of Millington, has been arrested in New York on the charge of having embezzled upwards of $10,000 of the funds of that institution.

The State Bank at Macon, and all the banks of Columbus, Georgia, (except the Phenix,) and the Rail-Road Banks and some others, have *acknowledged* their suspension of specie-payments.

Gen. William H. Harrison, President of the United State, died on the morning of the 4th. inst. His disease was inflammation of the lungs, of which the commencement had been very recent, and the progress rapid to its fatal termination. For various considerations, no other death, nor perhaps any other isolated event, could have occurred which would have caused so much regret and disappointment to a very large proportion of the people of this country.

The late Vice-President Tyler, now President of the United States, (and possessing the full power of his predecessor, and for the full term, save the one month of the passed administration,) now assumes the station under entirely novel, and also the most favorable circumstances. Succeeding to the chief magistracy by virtue of the constitutional provision for a vacancy caused by death, President Tyler owes his exaltation not to election for this office, nor to the usual means for securing a presidential election—but *to chance*—and the selection, and the fitness of the individual to perform the duties of the office, are not the worse on that account, but the reverse. Owing to this before unprecedented circumstance, he has come into power suddenly and unexpectedly, and free from any pledge or promise to, or bargain with any person or party. Being thus entirely unfettered and uncontrolled, he is free to do what he deems right, and the best for his country in all respects. His course may be a glorious one, and must be, unless he should throw away the most favorable opportunity that has ever been offered to a president, since the accession of Jefferson. President Tyler is now in the only possible condition of incumbency in which a chief magistrate is bound only by his duty to his country, his oath of office, and his own previously avowed and well-known political principles. John Tyler has always professed, and gloried in professing, to be a *state-rights republican* of the "straitest sect." He has been one of those who contended for the strict construction of the federal constitution, and strictly limited powers of the federal government. And to an adherence to the same course, in his now exalted station, he is pledged by every act and profession of his whole political life. This general proposition includes several minor, but important, particulars, in regard to which the public mind has been much agitated, and the hopes of some and the fears of others strongly excited. Whether these hopes and fears were before well-founded or not, there is no ground for them now. President Tyler cannot and will not sustain any measure that is not fully authorized by the strict construction of federal powers.

The trial of McLeod has been continued to the next term.

The British Queen steamer, which had been expected for a week, arrived at New York on the 4th, after a stormy passage of 24½ days, bringing English accounts to March 10th, of great interest.

A war panic, and much excitement had been produced by the McLeod affair, and the warlike tone of the report of the committee of foreign relations of Congress—and a stock panic also, made worse by the news of the bankruptcy of the United States Bank.

A British squadron of ten ships of the line had been ordered to the coast of America, and three more battalions of infantry to Halifax.

Cotton had advanced at Liverpool a farthing per pound, owing mainly to the fear of war with the United States.

News from China to December 18th—to which time nothing more of any importance had been done by the British arms or negotiators; and the Chinese continued to delay the negotiation by shuffling and excuses.

Charles F. Mitchell, a noted member of Congress from the State of New York last session, and, more recently, a noted office hunter, has committed sundry forgeries of large amount, and moved off to Texas.

On the 6th inst. the bank authorities of Richmond "*resolved*" and formally notified the public of the re-suspension of specie payments of all the banks in Virginia. Thus has ended, as we predicted, the pretended resumption, which has been the most ridiculous and contemptible and disreputable farce that has ever been played by such grave and dignified performers. The whole bank proceedings in Virginia, for the last two months, would serve as an amusing and laughable hoax, if the joke were not too serious in its effects on the cheated and pillaged community.

The Richmond Whig, when reporting and applauding this re-suspension, adds, "We hope now that the banks will consider suspension as *indefinite*—that is, that they will not pretend to the power of foreknowledge, and designate a period when they can resume, which depends upon so many contingent circumstances—and that they will cease to grind the community to prepare for an event [the resumption of payments] which may not and probably cannot occur, wisely, for several years." *We* are confident that the suspension will not only be for a time "*indefinite*," but that it will last as long as any of these banks will last, and even the swindling banking system of Virginia itself.

President Tyler's opinion of the banking system of this country, was expressed, years ago, as follows, in the congress of the United States. What was then prophecy, has now become history. "For one, I enter my protest against the banking system as conducted in this country; a system not to be supported by any correct principle of political economy. A gross delusion—the dream of a visionary—a system

that has done more to corrupt the morals of society than any thing else—which has introduced a struggle for wealth instead of the honorable struggle which governs the actions of a patriot, and makes ambition virtue—which has made the husbandman spurn his cottage, and introduced a spirit of luxury at variance with the simplicity of our institutions."

The "patroon war" of New York has been renewed; 300 of the Van Rensellaer tenants have refused to pay rent.

The Miller's Bank of Clyde (N. Y.) has been wound up by due course of law, its securities and funds sold out, and the bill holders will get 90 cents in the dollar. The stockholders, we presume, will get nothing.

Saturday, April 17, 1841.

The Acadia steam ship arrived at Boston on the 7th, bringing accounts 9 days later from Liverpool, to the 19th March. No important news. From the European (of Liverpool) of the 19th we gather the following facts or inferences.

The expectation of war with the United States, had somewhat subsided, owing to more full consideration of the grounds of recent apprehension; but preparations for it were not the less going on. Every voice heard deprecates and opposes war, but at the same time all parties seem ready to meet it, if required by the execution of McLeod. The prospect of war had already operated very injuriously to the interests of the manufacturing districts. In consequence of the fear of disarrangements of markets, the cotton manufacturers at Manchester had agreed to reduce the time of labor, by working their hands only four days in the week.

In our opinion there is but little danger of war from the most prominent subjects of dispute—the trial of McLeod, and the Maine boundary; but very great danger from the illegal system of searching American vessels, by British cruisers, recently acted upon, in the African seas; and which unjustifiable procedure seems to attract but slight notice in the United States, and none whatever in England.

The Marquis of Hertford owned stock in the United States Bank to the amount of £500,000 (nearly two and a half millions of dollars) which will be nearly all lost by its bankruptcy. European capitalists will be very cautious hereafter of vesting in American stocks.

Both the land and naval commanders of the British forces in China have been superseded—a sufficient indication of their incapacity, and the displeasure of their government. So far, the invasion of China is a failure.

Madame Restell, who has for a long time been advertising, through the New York Herald, which was of itself an outrage on public decency and morals, to sell "*preventive powders*," or means to cause abortion, has at last been charged with, and is imprisoned for, an act of murder committed on a mother, when the object was merely to destroy her offspring. The gallows is too good for such a wretch, even if this last *mistake* had not been committed.

At the general meeting of the stockholders of the United States bank. (8th. inst.,) all respect for the late authorities, for the first time, was thrown off, and their names and acts strongly denounced. The report adopted is of course more moderate and guarded in expression, but still very severe. The resignation of the President, Dunlap, and six or eight directors, was announced to the meeting, and received with "obstreperous applause." An exculpatory letter from the former cashier and European agent, Jaudon, was treated with signal contempt—and even the great Nicholas Biddle, and the former directors generally, were censured in the debate, in the strongest and coarsest terms, and reference made, for comparison and illustration, to Dr. Dyott's case, and his present residence in the penitentiary. "How are the mighty fallen!" Since, letters in defence have been published by both Biddle and Dunlap. The old saying that, "when rogues fall out, honest men recover their rights," is certainly not true as to banks, whether the banks themselves or merely their agents be the cheats and thieves in question. But, even as to the banks, the great and legally licensed robbers of the community, we trust it is now at least true that when the rogues quarrel, honest men may learn how they had been cheated and robbed.

The bill for relieving the banks of Pennsylvania, which had passed the legislature by a bare majority, has been vetoed by the governor. We trust that now these banks will be compelled to remain confessedly bankrupt, if they are so, and to meet the penalties of bankruptcy, and all their obligations, as all individual debtors would. If the government of Virginia had not been a large partner in the banks of Virginia, the like honest and proper course would have been adopted in this state. As it is, the banks of Virginia will be protected by law in every violation of law and of honest obligation, as long as the impolitic and infamous partnership lasts, and until the existing system of fraud and pillage cannot be sustained longer. The great and only possible means for bank reform in Virginia, is to dissolve the partnership existing between the banks and the state.

The New York Herald says—

"The Virginia banks have again suspended for the 'relief of the people.' The following is a statement of the specie and circulation of the Bank of Virginia, before and after specie payments.

Bank of Virginia.

	Dec. 28, 1840.	April 5, 1841.	Decrease.
Circulation,	988,388	638,096	300,242
Specie,	295,132	262,092	33,040

Exchange Bank, Office at Richmond.

	Jan. 1, 1841.	April 1, 1841.	Inc.	Dec.
Loans,	650,137	650,094	—	043
Specie,	78,748	63,709	—	15,039
Circulation,	229,975	149,465	—	80,510
Deposits	184,500	208,460	23,960	—

"The returns show that, under specie payments, a most healthy reduction of a redundant currency was going on. This loss of circulation was injuring the profits of the banks, and the speculators and directors, who owe the banks most of the loans, not being in a condition to pay up, in order to allow the process of curtailment to be carried out, the institutions came to the conclusion to stop, and actually did so, with nearly as much specie on hand as they resumed with—an increase of deposites, and a discount line quite as high as when they commenced paying specie. This is seen in the return of the Exchange Bank. Such conduct requires no comment. The people are to be cursed and taxed by an irredeemable currency, because some dozen speculators, that have possession of the funds of the Bank, cannot repay it. If the business of the Bank was perfectly under its control, its assets maturing in sound business paper, and promptly paid at maturity, it could go on until doomsday without regard to the movement of any other bank."

A new operation by a bank—The last indemnifying bank law, has a new feature, designed as a pretence of penalty on banks refusing to pay their notes, and of pretended recompense to the note-holders thus deprived of their rights. This provision is, that whenever a note is presented for payment to the bank which issued it, and the payment refused, that the fact of such refusal shall be *endorsed* on the note, with the date, and signed by the cashier or some other officer of the bank; and that thereafter such endorsed notes shall bear 6 per cent. interest. Now this, whether as a penalty on the refusing bank, or compensation to the wronged bank creditor, (or note-holder,) is so poor and pitiful a remedy, that it was probably expected that no one would require its execution; and, therefore,

that, like most other legal remedies against fraudulent banking, it would be null and void. If the notes, when so endorsed, should be retained by the first holder, the transaction would simply amount to lending the notes, or obligation of the bank, to the delinquent bank itself, and for a time altogether uncertain; and that the lender *may* finally get 6 per cent. interest for the loan, which he could get from any other and more prompt, and responsible and trustworthy debtor, than the bank. If he puts the notes into circulation, he will get nothing by the endorsement, which would be erased as soon as it came into possession of *any* bank, or any bank slave. Nevertheless, we desired to see how this new requisition of law would be obeyed, as we desire every one of the few and feeble penalties imposed on the banks by law to be exacted. By a rare chance, we recently received $900 all in notes of the Branch Exchange Bank of Petersburg. Specie was demanded for them, (as a preliminary matter of form) and, on the refusal, the *endorsement* directed by law was required. At the request of the Teller, the notes were left for the purpose, and called for the next day. The writing then found affixed was simply "*April 10th*, 1841, *P. Durkin, Cashier;*" and that was *on the face* of the note, and in such pale *red* ink as to be very nearly illegible, and in some cases entirely so. On one note only, black ink had been used, and which was abundantly plain. Regarding this writing as no *endorsement*, and, even if endorsed, as furnishing no obligation whatever, we returned the notes for the authorities to try their hands at writing again. After two days more, (which we cheerfully waited, to give abundant time for deliberate action,) we called for and again received the notes, *endorsed* indeed, but so illegibly in almost every case that no one can read the whole of each, and sometimes not a word, and *signed by the bank runner*. Now this mode of endorsing a legal obligation is clearly a refusal to endorse; and if we had chosen, or should still choose, we might exact, by law, the heavier penalty for a refusal. But, for the present, we prefer to take sufficient evidence of the signatures, and to send abroad, and especially to the country, these notable evidences of bank obligation. And, as the endorsements would not otherwise be noticed we have had printed and pasted below each endorsement, a label with the following words:

"The endorsement on this note should read thus:

"*Payment refused April 10th*, 1841.

JAMES BOYLE, *Run.*"

And, accordlng to law, it carries interest (to be paid whenever the bank shall pay the principal,) at 6 per cent. per annum. But as the writing is *too pale and indistinct to be read*, this printed explanation is annexed for the information of all concerned.

EDMUND RUFFIN."

We shall continue to compel the endorsement (legibly or otherwise as the officers may choose) of all the notes which fall into our hands, on which the demand can be enforced; and if other individuals who are opposed to the non-specie-paying banking system, would systematically do the same, feeble as the means are, (and intended by the legislature to be so,) they would not be without important effects, in correcting both the great frauds of the system, and the little and pitiful meannesses of its practical operations.

Dr. Benjamin Drake of Cincinnati, the author of several scientific and literary works, died on the 1st.

"The book keeper of the Union Bank in Nashville, Tenn. has been arrested for stealing some eighteen or twenty thousand dollars of the notes of that bank, to which charge he has confessed himself guilty."

"Gold and silver have been rushing off to the eastern specie-paying states ever since the suspension of specie-payments in Pennsylvania, and the states south and west. Should any bill pass the legislature of this state, tolerating our suspension for a period, its effect will be to deprive the state of what specie yet remains in circulation. It is a most unwise policy, and those of our newspapers which think the people are in favor of it will find themselves mistaken sooner or later."—*Phil. Ledger.*

"*Gallipolis Bank.*—The present managers of this late swindling shop, report that after having redeemed more of the paper of the bank than the late officers said was in circulation, they have learned that there is still out more than $400,000."

"The bank of Mineral Point, Wisconsin Territory, has exploded, and the managers are charged with gross misconduct in conducting its affairs. They were connected with the Gallipolis Bank's fraudulent operations."

Thomas L. Budd, book-keeper of the Union Bank of Baltimore, has been committed to prison for stealing about $10,000 of the funds of the bank. "He has heretofore borne a good character, and was believed to be a pious Christian."

Saturday, April 24, 1841.

Publications of self-defence, mutual crimination and recrimination, continue to be made by Nicholas Biddle and the other late and present authorities of the bankrupt and now prostrate United States Bank. Each of the disputants has succeeded much better in assailing his fellows than in defending himself; and their combined evidence serves to expose, in the bank and its management, one of the most stupendous and flagitious frauds, carried on by men of the highest reputation, that has been executed since the days of the great Law and his Mississippi scheme, and the South Sea bubble.

"According to Mr. Biddle, the resumption of specie payments was a fatal blow to the United States Bank; its continued vitality depended upon a continued suspension. The Boston Courier takes up this notion, and comments upon it in the following manner: 'Ah! that fatal resumption of specie payments! The bank might have enjoyed its 'vitality' to all eternity and the day after, if its directors had not, in an evil hour, (good simple souls!) thought it best to show a disposition to be honest, and meet a few of their promises to pay. Let all bank directors take warning from this blunder of their Philadelphia cotemporaries, and never resume specie payments, if they have already suspended. If they now foolishly pay specie for their bills and notes, let them suspend at once. If they have 'vitality' enough to issue bills and post notes, which they are bound to pay only when it may suit their pleasure, they may continue 'strong and prosperous for ever.' "—*Phila. Ledger.*

The Vicksburg Sentinel of the 31st ult. says: "This city is now crowded with blacklegs. One of our principal hotels, we have learned, is literally crowded with them and their gambling apparatus." This shows that the outrage upon law, by hanging several gamblers, in Vicksburg, some years ago, has had no more benefit than mob law usually has.

A Portuguese slaver was lately carried into Rio Janeiro by the British brig of war Tower. She had 380 slaves on board, and had lost 140 on the passage!

On the recent benefit night of Fanny Elssler, the celebrated dancer, at New Orleans, the receipts for tickets were $6,000, and the presents to her besides, in diamonds, &c., raised her profits, for that night alone, to between $8,000 and $10,000. Certainly the people of this country are the most gullible of all upon the face of the earth. It would be difficult to decide whether the enormous tribute of money, and even *respect*, paid throughout this country to this foreign dancer and "demi-rep," or the tribute paid to the banks and their authorities, presents the stronger evidence of folly and slavishness, and willingness to be robbed.

Accounts from China as late as Jan. 6th have been received, by the American ship Panama. The previous advices were to December 18. Still nothing more done, either by the British forces, or by negotiation with the Chinese authorities.

It is said in the New York papers that the newly appointed collector of that port is still "literally besieged by applicants for office," from morning till night. This is truly the age of office-seeking.

"During the past week," says the Augusta (Ga.) Chronicle, "there has been quite an animated demand for specie-paying country notes. It has resulted in some measure from the plaintiffs in execution refusing to receive the notes of suspended banks. This has been the case latterly, in different parts of the state; and Tuesday last, being sheriff's sale day, those who wished to make purchases were obliged to supply themselves with the better currency. Sales of property to some extent were made at our market house yesterday for specie-paying notes, and we were surprised to find that the sales were made at good prices." Such would be the case in Virginia, and thus a sound currency be restored, if the bank suspension were not legalized. As law is beginning to operate on the Georgia "specie-paying" banks, (that is, paying specie when forced to it,) we trust the operation will there continue.

The British ships of war continue their outrages upon American vessels. The Baltimore Sun says that "Captain Wyse, of the Leonidas, at this port from Rio de Janeiro, states that on the 16th of March, in lat. 9 30 S. long. 35 47 W. he was fired into and brought to, by the British sloop of war Rose; the boat sent on board, the papers demanded and examined, under the plea of supposition that she was a slaver. After detaining him for some time she was allowed to proceed."

It has been proposed in the New York legislature to discharge McLeod. The discussion thereupon is still going on. The conduct of the British in the affair for which he is imprisoned, (the attack on and burning of the Caroline,) was boldly and ably defended by members in the debate. If not thus discharged, McLeod will no doubt be acquitted when tried.

The British steam ship, Columbia, arrived at Boston on the evening of the 20th, bringing accounts 15 days later—to the 4th inst. No important news.

The intelligence received from the United States had been deemed pacific, and had allayed the war excitement and feeling in England. It had also caused cotton to fall one-eighth of a penny. Flour had also fallen.

There had been a revolutionary movement in Marseilles, which had been easily and promptly put down by the police. Fourteen of the insurgents were made prisoners, and the rest were dispersed.

In New York (in consequence of the news from England) cotton fell a quarter of a cent, (April 21st.) A cargo of southern corn sold at 42½ cents. In Richmond, corn 45 to 47 cents—and small quantities have sold at 50 cents. (22d.)

From January 1 to April 1, there have been reported in the newspapers 74 murders and 63 suicides which have occurred in the United States.

"A few nights since, twelve negroes, belonging to the Rev. Wesley Adams, of Jefferson county, Florida, were burnt to death. They were all in one building, and it is supposed were suffocated, and rendered insensible, as they gave no alarm, and when the doors were opened uttered not a groan."

"We learn from the Savannah papers of Saturday, that the Planters' Bank of that city had been robbed of $37,000."

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